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GENERAL JOHN BUFORD.

OF all the cavalry officers of the early years of the war, none stood higher than Maj.-Gen. JOHN BUFORD, and at the present time among the new generation of officers, as well as with those who knew him personally, his name is the synonym of excellence in the mounted service. Those who had the fortune to serve with him in the war are not surprised at the high place assigned him in history and by common agreement. His was a unique character. He was full of dash, without ostentation or parade. Quiet in his manner, but decisive in action. A strict disciplinarian, who had the respect and affection of his command. As a troop and battalion commander, Gen. (then Capt.) BUFORD was among the first of the cavalry officers of the "old army" to depart from the cast-iron rule of Martinetism, and to treat the soldier as a thinking, reasoning being. He took especial pains, as a troop commander, to dignify and elevate the non-commissioned officers of his troop, going so far in the interior management of his command as to convene a board of non-commissioned officers for the adjudication of matters personal to the men of his troop. It is not necessary to indicate with what excellent effect a well-managed course of this character was pursued, nor need it be suggested that it is an experiment which not every troop commander could adopt with success.

In the present number of the JOURNAL the Cavalry Association presents to its members a good likeness of Maj.-Gen. BUFORD. It is from a photograph taken in the uniform of a brigadier-general. His commission as a major-general of volunteers was sent him by Secretary STANTON

while he was sick with his fatal illness in Washington. No photograph could convey a correct idea of his living presence. He was of medium stature, fair-haired, blue gray eyes, with a drooping, flaxen moustache, which almost concealed his mouth. Gen. BUFORD was fluent in conversation, and, though at times taciturn, was always approachable and pleasant to his officers and men. He was a superb horseman and neat in his attire, though he affected a carelessness in dress more as a protest against the gaudy display of some of his cavalry contemporaries, who indulged in tinsel and feathers, for whom his respect was not great, than because neglect of dress was natural to him. He despised ostentation and display of any kind, was gentle, genial and natural in social intercourse, but a very tiger when aroused.

It is not the intention at this time to enter into the details of Gen. BUFORD's life. It is to be hoped that a worthy pen may in the near future make this record for the benefit of future cavalry men. It is especially wished now to put on record facts as to the share that Gen. BUFORD had in the final success at Gettysburg — the part he took in selecting, and holding the field whose natural advantages gave our brave troops the victory that saved the country from invasion and final destruction. We quote from Bates' Battle of Gettysburg: "On the night of the 30th, Gen. BUFORD spent some hours with Col. THOMAS C. DEVIN, (one of his brigade commanders,) and while commenting on the information brought in by DEVIN'S scouts, remarked that the battle would be fought at that point and that he was afraid it would commence in the morning before the infantry would get up. 'They will attack in the morning and they will come booming — skirmishers three deep,' said BUFORD, 'and we will have to fight like devils to hold our own until support arrives. The enemy must know the importance of this position and will strain every nerve to secure it.'

"The judgment of BUFORD was just, showing that he was possessed of remarkable discernment and penetration.

"Being well assured that the enemy was about to attack him, BUFORD was early in the saddle and had made the most imposing disposition to meet them of which his little force would admit. Had he had at his back the half million of troops, that a farmer's wife in reply to enquiries of a rebel officer had declared were in Gettysburg, he could have scarcely made one more so. In addition to being imposing, it had the virtue of being effective, and when the rebels came on 'booming, skirmishers three deep,' as BUFORD had predicted, they met a stubborn resistance.

"AS BUFORD'S men for the most part fought dismounted, the enemy at first took them for infantry and consequently moved tardily and with much circumspection, giving time for the first corps, which was now rapidly approaching, to come up, so from the opening fortune favored the

Union arms. A constantly increasing skirmish fire was continued for half an hour, when the enemy having brought up his artillery opened with much spirit. The guns of BUFORD answered promptly, and maintained the contest gallantly, preserving the delusion that he was well supported. The fury of the fight increased at every moment, and BUFORD saw that the weight of numbers bearing on him would press him off the field; but not an inch was yielded though he had every preparation made for retiring to Cemetery hill, when he could hold out no longer. It was a moment of gloom and anxiety to that true heart. Would he be left to his fate and be obliged to sacrifice that vantage ground he had striven so hard to hold?"

The history of the battle then goes on to recount the story of the arrival and deployment of REYNOLD'S corps, and continues:

"The heroic BUFORD, who had first felt the shock of battle, and during the long hours of this terrible day, had held his troops on the flanks of the infantry, joining in the fierce fight as opportunity or necessity required, and who from his watchtower had scanned and reported every phase of the battle, was now at the critical moment a pillar of strength. His front was tried and the attempt was made to push past him along the low ground, drained by Stevens Run, when some severe fighting occurred. But he maintained his ground intact, and that admirable position, where the army at length fought and won the battle, was again saved.

"Indeed," says this history, "the spirit of BUFORD, like a good angel, seemed to be constantly hovering over the entire field of that first day. One of the best read of our military critics says of him: 'He not only showed the rarest tenacity, but by his personal capacity made his cavalry accomplish marvels, and rival infantry in their steadfastness, not only in the battle itself but afterwards, when deployed in the intervale, drained by Stevens Run, west of Gettysburg.' "

But we need not quote further. This is part of the record of BUFORD'S cavalry division in one day's battle — the first day at Gettysburg. It is a record that reflects undying glory on BUFORD: A record that every cavalry officer may be proud of.

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HOW OUR GOVERNMENT MAY BREED ITS CAVALRY HORSES.

By ALBERT E. WOODSON,

Captain Fifth Cavalry.

OF all classes of men, and of all persons whose vocation connects them more or less with the constant use of horses, none should have a higher appreciation of the individual merit of such animals than the mounted corps of armies. The individual fitness of the horses of a cavalry regiment is a large factor in estimating its efficiency. Since then its efficiency is measured by the quality of its horses it becomes imperative that it be well mounted. The question of how to obtain the material to constitute the best mounts is therefore exceedingly pertinent. Applying this question in its practical bearing I choose for my subject—"How our Government may breed its Cavalry Horses."

I do not claim the merit of novelty for the suggestions I may make as to the establishment of a "Government Breeding Farm," for it is known that others, (including the Lieutenant General of the Army,) entertain views of their own on this subject; but for the manner of breeding and the selection of breeding stock, I may claim originality.

Whether it be a necessity at this time for the government to take in hand the active operation of a breeding establishment for such a purpose may admit of doubt, but I shall attempt to show that the necessity does exist and never heretofore in a greater degree than at the present time.

The difficulties annually met with by the department charged with the purchase of re-mounts for our service are by no means abating, but with each succeeding year, it is growing more difficult to obtain suitable horses, and their fitness becomes still more reduced below the required standard. Breeders have taken a new departure in horse-breeding; they no longer devote their capital and energy to breeding saddle animals but are being carried away with the popular craze for heavy foreign draft horses or standard bred trotters. The demand for saddle animals is being reduced; people generally ride less and drive more; railroads span the country in

every direction, and it is no longer a necessity to travel mounted. Some few ride for pleasure and for these, none but high priced well-gaited animals suffice.

Since in my opinion it becomes policy on the part of the government to lend its fostering care to the accomplishment of such an object I propose to show in what manner it may be accomplished.

First — How horses best adapted for the mounted service may be bred.

Second — The superiority of the animals selected for breeding stock, and the manner of their breeding to a fixed standard.

Third — A plan of a breeding farm with estimates of the cost of same.

Fourth — A comparison of the fitness of the animals bred to a certain standard with that of those supplied by purchase under the contract system.

Fifth — A description of the different gaits of saddle animals and those best adapted for the cavalry service.

For the foundation breeding stock for this purpose there should be obtained by purchase in open market a number of native Indian pony mares selected for their fitness as dams, and as sires (proportioned to the number of mares) thoroughbred stallions of size not less than sixteen hands, physically and constitutionally sound, with ample bone and substance. From the union of these would be acquired the female progeny to constitute the dams of the proposed standard-bred cavalry horses, in which we shall expect to find animals that when matured will prove all to be desired for the mounted service. In order to show the advantages to be gained by such a combination of blood it will be necessary to go a little into the history of the breeds of the animals selected. That of the thoroughbred is too well known to require elaboration. In their selection of sires we shall expect and may feel assured that they will impart to their progeny the good qualities that have rendered them so famous the world over. The crossing of them on other breeds of horses when carried on, has in every instance resulted in the improvement of the less pre-potent blood, for in speed, resolution and endurance, muscular development and density of bone, they surpass all other breeds and there is scarcely a race of horses but may be improved by a cross with them. This fact is almost universally recognized and nearly all the countries of the civilized globe have for years regarded the English thoroughbred or "blood horse" as the basis of all substantial improvement. Whether in admixture with the blood of the phegmatic draft horse or the more spirited trotter of American production, the influence of such blood is pre-eminent and self-asserting, leading to a higher degree of perfection in the resultant progeny.

The term "thoroughbred" is the synonym of the highest form of physical perfection in all animals; applied to the horse it refers to animals

denominated "blood horses" from well established purity of lineage. We are informed that the lighter horses for speed, introduced into England previous to the reign of JAMES I, were Spaniards, Turks and Barbs. The Arabians were introduced in the latter part of the reign of QUEEN ANNE. Similar horses tracing their lineage from the same source were brought to Mexico by the Spaniards. The Arabian horses possessed undoubted beauty of form and grace of motion, but were inferior in size to the average thoroughbred, being rarely over fourteen and one-half hands high. The thoroughbred horse is purely a British production. At a very early day the rulers of Great Britain directed their attention to the work of improving the breeds of their horses by crossing them with the Spaniards, Turks, Barbs and Arabians.

From the Spaniards of Mexico descended to the American Indians of the western plains the foundation stock of their breed of ponies, which have been rendered still more diminutive in size by the vicissitudes attendant upon the conditions of their nomadic life, but as vigorous, hardy and enduring and as well adapted to all needs of their savage life and the uses made of them in Indian warfare as their remote ancestry of two centuries ago. This much of the history of the thoroughbred is given by way of showing the relationship existing between them and the Indian ponies of the present day. Asked why Indian pony mares are to be preferred as dams, I answer because they possess the qualities we desire to retain in our proposed standard in a greater degree than any other breed of horses; characteristics so marked that no amount of outbreeding would eradicate. All officers of experience on the western plains have had ocular proof of the superiority of Indian ponies over our animals in Indian warfare, their docility, activity, tractability and hardy endurance, combined with weight-bearing capacity, render them especially adapted for such purposes. I might mention as evidence of their ability to carry weight some instances often witnessed in our immediate vicinity—that of two and sometimes three "buck" Indians mounted on one pony, or that of one single animal drawing the lodge poles of a large Indian tepee, their ends strapped over its back with many pounds of Indian "penates," children and dogs on the travis behind. I once saw a single pony carrying the entire carcass of a large elk minus the head. The Osages, noted for the large size of their men, sometimes weighing as high as 250 pounds, are often seen mounted on diminutive ponies. I attribute this ability to carry great weight to their muscular development and density of bone. I know of no other breed of animals of equal ability in this line, according to size, except the Mexican burro, also of Spanish origin. This quality renders them well adapted for warfare purposes, for which they have been used from their earliest history. Why are they not, then, to-day as valuable for the foundation stock upon which to form a class of horses

required for our military service? I contend that from no other breed can we hope to obtain material of such excellence. Where can we find, in this country, animals that have exhibited qualities which so excite surprise and challenge admiration? As mothers they excel in the care of their offspring. Their instinct of self-preservation is wonderfully developed. This is exhibited amidst the winter's storm, when they paw away the snow to reach the nourishing grass or upon the arid sands of the desert, when, with unerring direction, they take the shortest route to the nearest pool to slake their thirst. The sagebrush of the plains or the cottonwood of the valley alike contribute food for them when none else is near. They readily adapt themselves to all conditions of life, and are at all times ready for faithful service. Why need I multiply proof of the good qualities of this hardy race?

Having in view that the laws of heredity teach us that "like begets like," we may safely calculate on the certainty of transmission of such characteristics to their offspring, when coupled with the selected sire, through succeeding generations. I hold it a fact that the Indian pony is more nearly connected with the blood of the thoroughbred than that of any other breed of horses in this country. It is, then, no violent outcross we shall attempt, but rather a reunion of the blood that, though emanating from the same well-spring of equine life, has through diverse channels followed its courses unmixed and unimpaired in its quality through more than two centuries, and it is now proposed to unite again those streams of divergence and combine in the progeny of such selected sires and dams the characteristics of both. In so doing we shall find no incompatibility to reconcile, but a happy union in the blending of the peculiar traits of both, each exerting its proper share of influence over the other; the exuberance of spirit in the thoroughbred gently toned by admixture with the less excitable blood of the Indian mare; with the speed of the former slightly reduced, but with no loss of vigor, endurance or firmness of bone or muscular development; with intelligence unimpaired, and size, with weight-bearing capacity, increased. It is from such union that we shall obtain suitable dams, which, when bred again to thoroughbred sires, will produce foals which, when properly broken and gaited, will leave nothing to be desired in our cavalry horses. Animals representing all the necessary qualifications, and as nearly approaching the desired standard as it is practicable to obtain by systematic breeding, and so superior to those acquired by purchase under the contract system that it will be readily apparent to all concerned, and cheaper to the government by at least one-half.

There can be but small doubt that animals so bred will retain the good qualities of their progenitors. "Every living thing brings forth its young after its own kind," in some "cases the exact counterpart of the parents,

in others slightly modified, but always showing more or less of the parent type." But a few days since an officer of the Association asked why it would not be practicable to obtain the same results from another course of breeding—naming a cross of Norman stallions on Indian pony mares, and their offsprings in turn on the thoroughbred. In answer to this, I have to say that if we attempt to obtain the same results from the selections of such sires and dams we may expect to meet with disappointment at the very outset Improvement in any species of domestic animals, conspire to make the work of creating a new type from heterogenious materials extremely difficult. In making selections with a view to perpetuating and variation from an established type, we must always begin with such individuals as have manifested a tendency to assume the desired form and peculiar characteristics, and transmit them to their offspring.

In coupling such animals, of a widely different character, and with such distant variations of breed, new elements of divergence would be introduced in the offspring. "The force of heredity is usually exerted to compel the progeny to adhere to the character which has become fixed in the species," rather than to follow the variations sought to be established, but in the selection of both parents, each more nearly representing the type it is desired to originate, the influence of heredity lends its powerful aid in favor of the perpetuation of the improved form.

"With a mixed and heterogeneous ancestry, representing various shades of divergence, progress in any given direction by selection, will, under the most favorable circumstances be slow and the results will frequently be anything but satisfactory." Thus am I supported in the selection of animals, whose departure from the standard desired to be established is reduced to the minimum, for I have shown that they are connected by ties of blood, as well as in peculiarities of form and distinctive characteristics, what is "bred in the bone" will be transmitted with unfailing certainty. "Beauty of form and feature, strength of force and intellect, elegance and grace of motion, integrity and honesty of character, susceptibility of culture and refinement, or boorish stupidity as well as all the vices are as clearly transmissible and inheritable qualities, as the color of the hair or the shape of the body in horses or cattle," and reasoning therefrom, we may safely count on maintaining the good qualities of the animal selected, in their produce which will in turn reproduce the traits and peculiarities of their race, modified perhaps to some extent by the new conditions which environ them, and these again into animals still better adapted to the new order, until in a few years our breed of horses would be so well grounded in the good qualities sought to be engrafted in them, that the "end would crown the work," and make our standard complete. Enough has been said to show how

our cavalry horses may be bred, and we now pass to the manner of breeding and rearing them.

It would require an appropriation by Congress of funds to purchase the necessary breeding stock, not to exceed $30,000.00, which would be sufficient to inaugurate the undertaking. This amount would cover all expenses connected therewith, including cost of stables, sheds and fencing, pay of employes, etc., for the first year.

It would require for location some military reservation in the west, of sufficient area for pastorage, paddocks, etc., (upon a portion of which could be cultivated and grown all the forage required,) and in addition thereto, facilities for watering the stock.

It would require four hundred Indian mares, and eight thoroughbred stallions, to be purchased in open market, and selected especially with a view to their fitness for breeding purposes, from the best animals to be obtained; stallions to be not less than sixteen hands, physically and constitutionally sound, with ample bone and substance; mares to be of good, solid colors — bays, browns or chestnuts, and not less than fourteen hands high.

An officer of the cavalry arm should be detailed as superintendent of the "Breeding Farm," possessing as far as may be, a practical knowledge of the following subjects.

The breeds of horses, the selection of breeding stock, the management of stallions and brood mares, the weaning, rearing and breaking of foals, and their subsequent training to saddle gaits.

A detachment of thirty-five cavalrymen, including two sergeants and two corporals, selected on account of their ability to properly break, ride and train young horses, and perfect them in their gaits under the saddle. There should be one civilian superintendent of farming, who should be experienced in the management of breeding stock, and four civilian employes as laborers, with one skilled veterinarian, a graduate of a regular medical college.

An increase in the strength of the detachment, would in time be necessary, proportioned to the number of animals reared, and the necessity for the detail of a full troop of cavalry in the begining might be deemed expedient. This breeding establishment shall be under the control and management of the superintendent, subject to the direction of higher authority.

It is expected that grass alone would supply all necessary forage for the brood mares and foals, supplemented during winter months by hay cut upon the reservation; reared on it the young stock would be far more healthy and free from the ailments which the use of corn engenders.

The reservation having been properly enclosed, the division of pastures should be arranged to accommodate fifty brood mares each.

Stallions.— Stables should be constructed conveniently near to each of these, for use during the breeding season. The breeding of mares to begin not earlier than May 1st to insure foals being dropped after April 1st.

The percentage of foals to mares bred, may be estimated at sixty per cent., though seventy-five per cent. has often been attained. The absence of reliable statistics in our country does not afford a means of determining what the percentage of foals for any given number of mares may be; this question, however, is removed beyond the realms of conjecture by the recorded results in the great breeding studs of Germany. "Taking the entire career of all the breeding establishments from 1859 to 1874, with an average of one thousand stallions and forty-two thousand mares per year, we find the results as follows:

Average percentage of mares in foal.....67.7
Average percentage of live foals dropped.....53.3
Average percentage of mares aborted and miscarried..... 4.8
Average percentage of mares dying or not accounted for..... 9.6
Highest number of live foals at Zirka, Province of Posen.....62.
Lowest number of live foals dropped at Wiskrath, one of the Rhine Provinces.....33.3"

Whether these figures will apply exactly to horse breeding in this country is of course not definitely known, but they accord in the main with the experience of those breeders with whom I have communicated.

It must be apparent that a limited time would elapse before any appreciable results would obtain or practicable benefits accrue to the government. It would take at least four years from the beginning to secure the graded dams from the first cross of the stallions on the Indian mares. These would be dropped as foals in the second year of the establishment, and at three years old would pass into the stud. Bred as three year olds, they would drop foals at four, these would be standard-bred and would be fit for assignment to regiments at four years old, after having been properly broken and gaited for the service. The education and training of these should begin as "weanlings" and carried forward, as it should be, until four years old; they would then have all the qualifications essential in cavalry horses. The fillies of the same age, being bred at three, would drop foals in their fourth year, and bred again would add another crop of colts in their fifth year, and thus, year by year, like results would obtain, according to the number of brood mares retained in the stud. All "culls" and unserviceable animal should be sold, as well as the Indian mares after a sufficient number of graded fillies for brood mares had been obtained. Then would come a time when there would be an excess of mares needed for breeding, and drafts therefrom should be sold, or sent to other breeding farms established in other sections of the country. If the number of brood mares was not kept within limits, a greater number of young animals would in time accumulate than the necessities of the service would

require in time of peace, and exceeding the capacity of the one establishment to care for—for such contingencies proper timely arrangements should be made.

For the second generation of fillies, from standard bred mares, selected standard bred sires should be used. For this purpose a sufficient number of the young standard males should be reserved entire, and they would constitute the sires for future use. It would not be proper or expedient to use thoroughbred sires on their progeny of the third generation, for when they had sired a sufficient number of graded dams, the continuation of their use in the stud or their own progeny would not be desirable; while thoroughbred blood is most prepotent, we would not want too much of it; too much spirit with its accompanying nervous organization is not desired in the standard horse. The thoroughbred stallions having served as the means to accomplish the object aimed at, should then be sold.

A complete record of brood mares, stallions and foals, with pedigrees of each should be kept, date of service, birth of foal, sex, color, markings, etc. This would be very necessary to avoid the evils resulting from incestuous breeding, and to insure the intelligent subsequent mating of sire and dam.

Good judgment and careful management in properly mating sires and dams from now on, and in the education of the young animals reared, would undoubtedly be followed by success in the undertaking. If the results were encouraging and it should become necessary to breed a greater number of animals than the one breeding farm could supply, others in different sections of the country could be organized on the same principles.

In making selection by purchase of Indian mares, it should be considered that there is marked difference in the character of such animals, owned by the different tribes of Indians. My own experience shows that those owned by the Comanches are better as a class. They have generally owned the best horses of any tribe of "Plains" Indians. I have also seen some excellent Mexican mares, which would answer the purpose; they are descended from the same original ancestry, and possibly have had better care and more attention paid to their breeding.

I estimate the first cost of 400 mares, at $30 each	$12,000
Ten thoroughbred stallions, at $800 each	8,000
Expenses incurred in purchase and transportation of same	1,000
Total	$21,000
Add to this cost of fencing reservation, with subdivisions, paddocks, stables, sheds, etc	$ 5,000
Making a total cost of	$26,000
For salary of employes per annum—	
One veterinary surgeon	$ 1,000
One superintendent of farming	900
Four laborers, at $300	1,200
Total	$ 3,100

When we compare the cost to the government of the animals bred on such a breeding farm with the prices paid by the quartermaster's department, the difference will be largely to the credit of the former, to say nothing of their superiority. It costs the farmer about $70 to raise a common colt to the age of four years, and this without training or breaking to saddle gaits; with the increased facilities afforded by an establishment on the proposed plan, it ought not to cost exceeding $60 to the government for a far better and more suitable animal. The prices under the present contract system range from $125 to $165 per head, with cost of transportation added.

Now let us compare the relative merit and fitness of such standard-bred horses with those supplied by purchase: The experience of every troop commander shows that many animals are assigned to them utterly unfit, in many respects, for the service—animals better adapted for any other use than the mounted service, and, though required to conform to a fixed standard, possess a diversity of qualifications as to age, weight, height, size of head, length of neck, obliquity of shoulders, depth of chest, length of back and legs and size of feet that are truly remarkable. They seem to have been collected more with a view to dissimilarity in form and proportions than conformity to any established model. They might more properly serve to fill the demands for any number of uses, such as heavy wagon, cart or dray, carriage, coupe, light harness or street car purposes. I am not exceeding the limit of truthfulness in stating that I can select from my own troop animals representing the various qualities required in horses suited to each of the purposes stated. Now, if this diversity may exist in a single troop, what must it be throughout the cavalry service?

I have not named in the foregoing list saddle animals, because there are so few good ones in each troop that they are remarkable by their absence. But what more can we expect as long as the present system of purchase and inspection prevails? Capt. Moses Harris, First Cavalry, in a paper read before the parent Association and published in its journal of March, 1888, forcibly represents the defects of the contract system of purchase, and his opinions are shared in by cavalry officers generally.

The allotment of funds for the purchase of remounts to each department rather seems to be based on estimates for a certain number of horses to be supplied at a certain price per head, and when the contracts are let the animals are found to fit the price. The contractor sends out his agent and he selects such horses as he can afford to buy, leaving him a handsome margin on his price to the government; he buys everything in the shape of a horse that he thinks will pass muster; his object and his only care is to pick up animals that can run the gauntlet of inspection, and as a matter of fact many inferior ones get in. Now, many of these would be fully worth the prices paid for other uses than the cavalry service. We receive

some excellent ones for the plow, or the cart, or the threshing machine, but comparatively few fit for the saddle. Watch the sales of condemned animals and see how the farmers and freighters vie with each other to secure this or that one, because it would make such an excellent draft or plow horse; view him from a cavalryman's standpoint and behold a great clumsy, ungainly brute, a mixture of Norman, Clydsdale or English draft and plug, with feet remarkable for size and ponderosity, condemned for worthlessness or chronic ailment, constitutional or hereditary; the contractor received just as much for him as he did for the best of the lot furnished, and he represents just the value of a good serviceable horse. There is another kind which ought to (but does not) find its way out of the service by the same route; I mean that *bête noire* to all cavalry soldiers, the one that cannot be made to walk in ranks. On the long day's march from camp to camp he jogs his everlasting jog, to the great discomfort of his rider, who, worn and weary, laments his fate and perhaps wishes "the devil had flown away with him" ere he "jined the cavalry"; if maledictions could affect it, all such as these would be consigned to the antipodes of "horse heaven." The poor devil of a recruit generally gets this one, for such are always given the go-by and left for the last one to join. It is "Hobson's" choice with him, and it is either this one or desertion.

The average time during which our horses remain serviceable is less than six years.

Dr. D. LEMAY, veterinary surgeon, in a recent number of the *American Veterinary Review*, states that "Of ninety remount horses purchased in 1885, a casual professional examination made on their arrival at their posts revealed seventeen of them affected with various chronic diseases, which not only rendered them worthless for military purposes, but reduced their pecuniary value at least seventy-five per cent. below what they cost the government."

"The condemned list among our animals presents annually a far higher percentage than that of any other civilized army, requiring a yearly appropriation of two hundred thousand dollars

Many horses are held in service even when no longer serviceable, for troop commanders have hesitancy in submitting them for inspection and condemnation; because by inference the impression might prevail with those in authority that they were in some way responsible for their unserviceable condition, or had not exercised proper care of the animals under their charge, and as long as they can carry a trooper after a fashion, they hold the place of a better animal, and wax fat on government grain. They are rather a hinderance to the effectiveness of any troops. Whenever it is practicable to mount it, without calling them out, they are permitted to evade service, while other and better ones do their work. The

men shun them and the captain who wishes his troop to make a creditable appearance on parade or at battalion inspection, prefers to have them out of ranks.

As a matter of fact but few of the horses purchased by the quartermaster's department have any suitable, well established saddle gait, and there is seemingly but little attention paid, previous to purchase, to this most important requisite. The contractor may submit any horse for inspection of proper color, size, age, etc., and apparently sound and free from blemish, and it will generally be accepted regardless of qualifications as to saddle gaits; of course the animal must walk, trot and gallop, but on the quality of such gaits but slight attention is bestowed. He might be able to walk but two and a half miles an hour, or trot hard enough to loosen a trooper's teeth, or labor in his movements at the gallop like his near relation the Norman Percheron, but it matters not, down goes the good American dollars for this new acquisition and pop goes the U. S. Government brand on his shoulder, that binds him to servitude for the balance of his natural life, unless sooner brought before an officer of the Inspector General's Department.

Nearly all our best saddle horses have a large admixture of thoroughbred blood, for that gives them style, energy and endurance. Kentucky and Tennessee have quite a number of noted saddle stallions, the "get" of which have usually been well adapted to the saddle and if especial attention had been paid to the business of breeding, and the descendants of these stallions had been bred with as much care as has been taken with trotting and running horses, we might ere this have had a well established line of saddle horses.

There are three gaits possessed by nearly all horses to some extent; the walk, the trot and the gallop, some are fast walkers, but trot and gallop badly, while others walk indifferently well, but are great trotters, then we have another class by no means common, which possess as natural gaits, the walk, the pace and the gallop, the pace being the distinctive characteristic. These four gaits may be regarded as natural gaits.

As artificial gaits, there are four, the fox trot, running walk, rack and single foot. The fox trot is simply a modification of the *true* trot, and while it is not a true diagonal motion it departs from it simply in the fact that the forefoot touches the ground slightly in advance of the diagonal hind foot. It is the slowest of the artificial gaits, but it is above all others, an all day gait, and a horse possessing it to perfection will perhaps make a longer journey from sunrise to sunset, under the saddle, than at any other gait. This in my opinion is the gait "*par excellence*" for the cavalry, when more rapid movement than the walk is desired. It is easily acquired by any well bred intelligent horse under proper training.

The running walk is simply a modification of the true trot, but the

head is carried higher than in the fox trot or ordinary walk, and the hind foot takes she ground in advance of the diagonal fore foot, which breaks the concussion; a closer rein is generally held than in the fox trot and the pace is a faster one, and may be carried to a three minute gait. In it the poise of the foot, is such as to give the horse more of a climbing motion in front. In it the sound of the footfalls is not unlike that of the ordinary walk quickened, and the feet take the ground in the same order. It might be described as a variation of the true walk by imparting to it a bounding or elastic quality, in fact a walk on a run, if such a contradictory description is admissible.

The rack is a modification of the true pace, in which the hind foot touches the ground in advance of the leading fore foot.

The singlefoot cannot be classed as either a diagonal or a lateral gait, it is exactly intermediate between the trot and the pace; each foot seems to work independently of association with either of the others, and the same interval of time elapses between each footfall. It is a fast gait and can be increased to the rate of a mile in three minutes.

These four artificial gaits, in connection with the four natural ones, constitute all the requisite gaits of trained saddle horses, only four of which may be said to be essential in well-broken cavalry horses – the walk, fox trot, true trot and gallop.

I have followed very closely the description and analysis of the saddle gaits, given in an article which appeared in the *Breeders' Gazette* of October, 1887, as being the best description of the different saddle gaits I have ever seen, and I have described the gaits at length to show to what extent the education of a good saddle horse may be carried. Too much cannot be said on the necessity of our horses being well gaited, and, though the artificial ones do not necessarily constitute a part of their training, they are all the better for the possession of some of them, and again, I emphasize the *fox trot.* Long continued marches at the walk are tiresome to man and horse. The fox trot relieves and rests horse as well as rider; it requires no increased exertion, while it increases the rapidity of the movement five or six miles an hour. If the men were mounted on horses having this gait they would not exhibit disinclination to keep the trot, for it is regular and steady in its rapidity.

The difference between a well-gaited horse and a rough one is more readily appreciated by cavalrymen than any other class. It is the long, weary days' march that engenders fatigue, with loss of temper and energy at the end, and by how much is this condition enhanced when the trooper has been mounted on a roughly-gaited animal; besides, his efficiency is impaired, and, if called for other duty, he is not in condition to perform it with alacrity and prompt obedience.

Then let us unite in the request for well-gaited animals. It is believed that, while the present system *does* prevail, it is possible and practicable for the quartermaster's department to do this. It may slightly increase the cost, but it will add to the comfort and effectiveness of our service, and, I believe, will lessen desertion.

I may be pardoned for referring to my own experience in the selection of cavalry horses, having served on a board for that purpose, when eighty per cent. of the horses presented for inspection in open market were rejected for sufficient reasons. I have been present as a spectator at an inspection of horses purchased under the contract system, when I had an opportunity to witness the methods of examination and the test to which animals were subjected to determine their fitness for the service, and I can state that their examination as to the possession of suitable saddle gaits was cursory and incomplete. I hold that it is necessary that the animal undergoing inspection be ridden sufficiently to intelligently determine its fitness in each individual case.

From the government breeding farm should come animals having all the good qualities of trained cavalry horses, broken to ride and broken to saddle gaits; to walk four miles within the hour, to trot smoothly, to canter gracefully, to gallop well, and, if need be, to run for a man's life when duly called; of kind, tractable disposition, easily controlled on drill, parade or under fire, in ranks or on the skirmish line, in the stable or on herd; intelligent, muscular and substantial, courageous, fearless and enduring, if need be able to subsist for a limited time on grass, to endure thirst, winter's cold or summer's heat—for these qualities they should inherit. For these qualities were they bred, and such we may reasonably expect them to retain. In addition, we may count on their being sure footed, quick, active and wide awake, without sluggishness or stubbornness. From their breeding we should expect them to be lithe in neck, heads rather small, wide between the eyes and full in the forehead, with erect, pointed ears, indicating intelligence and alertness, and, lastly, of size sufficient to carry all the weight required. Their education to saddle gaits should be easy to impart, with reasonable care and patience. Supplied with such animals nothing in them would be left to be desired, and the very highest degree of efficiency of cavalry troops would be the more readily attained, for they would be fitted to perform the work required of them under all conditions in the best manner possible.

In conclusion, I believe that the advantages which must follow a course of systematic breeding will fully justify the experiment.

The yearly appropriations for purchase of remounts aggregate a large amount, running into millions in the course of a few years. When the actual cost of these animals is contrasted with that of those purchased

during a period of five or ten years, the difference in favor of the breeding farm would be sufficient to repay all appropriations and operating expenses, and leave a large balance to its credit.

It is by comparison that we judge of the value of any animal. Now, if this class will do more and better work and cost less to the government than those purchased, it becomes self-evident that they are worth more money. Indeed, it may be safely affirmed they will cost less than one half, and our cavalry regiments will be mounted on superior animals, whose qualities have been generated in the blood until they have become hereditary.

Other governments have preceded us in such enterprises, and their breeding studs have passed beyond the point of experimental ventures to that of assured success. Why should we delay to follow their lead, as well in the matter of breeding our own horses as in the adoption of new model arms and munitions of modern warfare?

Why need we delay, while the necessity annually becomes more apparent?

How to begin it, where and to what extent, are subjects that may well engage our most careful attention.

SOME FRENCH IDEAS ON CAVALRY, DRAWN FROM CAVALRY IN COMBAT—GENERAL T. BONIE.

BY FREDERICK S. FOLTZ.
FIRST LIEUTENANT 1ST U. S. CAVALRY.

AFTER the disaster of '70, the French cavalry, yielding to the instinctive impulse of the vanquished, made haste to adopt in the most wholesale manner the regulations of the victor. They borrowed from the Germans their ideas, their principles, their methods of remount, and their fighting tactics; and yet, in spite of much progress, the cavalry is still—according to the opinion of neighboring powers—the weak point of the French army.

General BONIE, believing that the French school has no reason to bow down before the German, takes up the gauntlet for his nation, and inscribes on his shield this device: "THE FRENCH CAVALRY, HANDLED ON FRENCH PRINCIPLES, IS WITHOUT RIVAL IN COMBAT!" In proof of this proposition, the General proceeds:

First—To a study of the present French tactics, and, consequently, of the German tactics of which it is a copy.

Second—To a study of the cavalry under the First Empire, and an *exposé* of the French tactics of that epoch.

Third—To a study of the cavalry in the last war, and an *exposé* of the modifications which modern inventions impose upon the tactics of the arm.

PRESENT TACTICS—UTILITY OF A NORMAL ORDER OF COMBAT.

A normal order replaces the vague, uncertain, and unforseen, by principles, if not invariable, at least almost always applicable; it gives greater mobility and more rapid attack by avoiding the waiting for orders; and, lastly, it saves us from exclusively relying upon the genius of the chiefs, who, after all, cannot be everywhere.

The infantry has practically realized this normal order, but not so the cavalry, and for the following reasons:

For the infantry all ground is practicable. The space, the nature of

the ground, will be more or less favorable to the normal disposition, but in general, the disposition can be taken. Hedges, trees, houses, ditches, which stop the other arms—far from paralyzing the attack of the infantry permit it to make its way under cover. Is it threatened by cavalry, the same formation may still apply, since it is only necessary to close up the intervals.

To resume: The infantry has found a normal fighting formation--*always the same, simple and easy to assume, lending itself easily to all kinds of ground, applicable to the different cases which may present themselves in war, to all the hypotheses of action, whether against infantry, artillery, or cavalry.*

Has the cavalry found a similar formation? No.

Its formation varies according as it is to attack artillery, cavalry, or infantry; it does not lend itself to every kind of ground, since the obstacles that shield the infantry shatter the lines of cavalry whose power lies in their union and in their shock.

A brigade having a front of 600 meters, a division will require 1,800 or 2,000 meters front, (and this, in every direction, for there is no certainty as to the direction in which it may have to act).

Such open spaces are hard to find, and we cannot, as in mediaeval times, repair to a field of arms to have our quarrel out.

To these considerations, we must add another, and a weighty one. The enemy must be left uncertain as to the point of attack; otherwise, the surprise and the unforeseen are lost, and it is exactly these two qualities that make the arm marvelous in its results.

Would the issue of a duel be doubtful where one of the duelists was well up in all the arts of fence, while the other had but one thrust, well known, and always the same?

To satisfy these conditions would involve a contradiction. On the one hand, a normal order presents many advantages; and on the other, it allows the enemy to guess the point of attack. Consequently, you will say the chiefs of cavalry must be quick to take in the situation, and ready with appropriate orders for every occasion; and to their judgment everything must be left. This is to declare that the handling of the arm requires exceptional qualities which will be rarely found among those who command it.

This is not the opinion of the author; the problem, notwithstanding its apparent difficulty, is easy of solution, if we adopt for the cavalry, principles very simple, rules very few in number, very easy of application, admitting of certain and rapid execution, and in accord with the inherent qualities of the French character.

Does the present Franco-German tactics conform to these requirements?

FRENCH TACTICS, COMBAT FORMATION.

For a division of cavalry, the normal fighting formation laid down, comprises nine lines of unequal strength. The first line delivers the blow and is supported by the second, while the third forms the reserve.

The distance between *echelons* varies according to circumstances. The second and third lines extend beyond the wings of the first line (one to the right, the other to the left,) to protect the flanks, which are considered the weak points of cavalry.

The three lines detach combat patrols, and the squadrons send out ground scouts who move in advance of the front.

The artillery which was massed 150 paces behind the center of the first line, moves to the fighting position which has been indicated to it.

As soon as the general of division, resolved to give battle, has given his orders, the chiefs of the first and second lines enjoy complete liberty of action.

In the attack made by the several lines, as soon as the intervention of flank guards or offensive flanks is necessary, the squadrons of the wings, without waiting for any order, should detach themselves very rapidly from the line.

A brigade would assume a similar formation.

This, then, is a sketch of the normal combat formation of cavalry against cavalry.

The dominant idea of this disposition is, that by flank attacks alone, can a decisive character be given to the cavalry combat; and hence the object of manoeuvre is to gain the flanks of the enemy and to defend our own.

The value of this formation depends, then, upon the correctness of this estimate of the power of the flank attack.

Against infantry or artillery, the flank attack is unquestionably most certain, we thus avoid a part of the fire; we envelope the enemy, strike him in rear and force him to face about to reply by his fire; and if, at this moment the shock occurs, the chances of success are great.

In a cavalry combat, the conditions are quite different; we have to do neither with motionless artillery nor with slow moving infantry.

The first precept inculcated in a cavalry leader is *to be the first to attack*, and (if he has allowed the adversary to take the initiative) *to anticipate him anyhow in the charge!* This principle is so inimitable that the regulations say, and properly: "*The chief of cavalry will not forget, that, of all the faults he may commit, one alone is infamous in action.*"

The hypothesis of a line of cavalry remaining motionless to receive the shock being therefore inadmissible, we can discuss the flank attack with reference only to lines moving to the encounter.

The regulation says, "For the flank attack we should seek to strike the wing of the enemy with the center of our line."

Suppose a regiment to have succeeded in striking thus; of the four squadrons, the two that pass in front of the enemy will have a part of their troopers charging into space, and the other men will be inferior, in ballistic shock, to their adversaries, for they are taken in flank by the chests of the enemy's horses and have every chance of being knocked over.

Must we then seek to attack exclusively at the back of the moving line?

Let us see; to fall on the rear of the enemy, the squadrons will have to make a change of front, which cannot be done at too great speed; and it will not be possible to resume full speed until the direction of the enemy has been obtained. Meanwhile, the latter is increasing his speed; the shock with our main line takes place before he is taken in rear, and our first line, charging through, finds itself face to face with friends, meets its own flank attack!

If however, the regulation flank attack has no chance of success, it is otherwise when used to disengage a repulsed line. In this case success is almost certain, since we fall on the pursuing troopers of the enemy, dispersed by the shock and with horses fatigued by the supreme efforts of the charge, taking them in flank and rear with our fresh animals.

The flank attack also finds its use in the attack of bodies in process of formation or changing position.

Contrary to ideas now current, the author then lays down this principle:

A line of cavalry that is marching, deployed, to the attack, must not think of its flank. Let it do its duty; that is to say, let it rush upon the enemy with speed and ardor. Its flanks will have nothing to fear, since the mêlée will occur before they can be taken in the rear. In any event, once started for the attack, it should be absolutely forbidden that any body from the wings should detach itself, of its own accord, to meet an attack or to make one. It is for the *échelons* in the rear to take this role, but everything that is thrown forward in the line should arrive without wastage at the target, so that the chief may be certain of the effect he will produce.

The leader of a charge should not have to watch his flanks and notice what is going on about him. His objects should be simple and easy to attain, demanding only energy—to throw himself on the enemy without allowing him time to see where he is.

The arm is difficult to handle, but with simple methods, like those of the First Empire, many of its chiefs are capable of managing it; while, on

the other hand, the present formation of three lines, not under control, prevents the development of its special qualities.

With the three lines so widely separated all unity of command disappears. We have three separate brigades or three separate regiments, each acting under its chief, while the superior commander is helpless as to modifying orders previously given or issuing new ones to meet new requirements.

The exigencies of cavalry combat can be satisfied only by concentrating the force in the hands of the general, leaving to his lieutenants nothing but the rigorous execution of orders received.

GROUND SCOUTS.

"In the vicinity of the enemy," says the French tactics, "the squadrons are preceded, at 200 meters, each by two troopers, who are to signal obstacles which might stop the advance.

"At the moment of attack the role of these scouts has a special importance in preventing the cavalry from charging on impracticable ground."

"The cavalry must not rush blindly over unknown ground," says Gen. BONIE, but he urges the following objections to the method of scouting adopted:

The swarm of scouts will reveal the presence and even the force of their main body.

When the line is moving at rapid gait (trot or gallop) these scouts can not give the required information. The rapid gait, before a charge, begins at 900 meters, and keeps continually increasing in speed. If the two scouts before the squadron fall, is the squadron to halt? Their horses may have been shot or have been tripped by a rabbit hole; there may be no obstacle before the squadron. Again, when once the gallop is taken (600 meters from the enemy) there can be no more question of stopping; the scouts will be too soon overtaken to give proper warning.

Then, the swarm of scouts before a line marching to the charge may be a veritable cause of disorder, fallen horses and men and wounded animals breaking up the ranks in rear. And, finally, these scouts must, at the last moment of excitement, be expected to find their places in ranks!

This role should belong either to isolated patrols or to the combat patrols, while they are seeking contact of the still distant enemy. They have then the necessary time to look up favorable ground, and can report when they come in. But the cavalry once started, it is too late, we repeat it, to think of accidents. Nothing must hamper the dash. "Heaven help those whose horses fall!"

RÔLE OF THE LINES—FIRST LINE.

Destined to deliver the first blows.

The regulation provides for three cases—

First.—The first line equals the enemy's line.

Second.—The first line is superior to the enemy's line.

Third.—The first line is inferior to the enemy's line, the latter occupying a more extended front.

To each of these problems there is a solution indicated.

"Time wasted!" cries the author, "each second lost, diminishes the chance of surprise!

"What matter all these situations?"

To attack first and at once—there is the only principle; and it needs for its application only boldness and energy—qualities eminently French.

"A regiment in line charges a brigade in line. So much the better; they will give account of double their number. The four squadrons are in fact equal in force to those that they strike, and the remaining four squadrons of the enemy, charging into the air, will find themselves with winded horses, at the mercy of the second *échelon*.

"Even now, the wings are safe; they are melted into the enemy at the moment of the shock, and cannot be taken in flank by those that overlap them."

The order from the general of division is simple: "Start for the objective that I indicate to you; charge home, straight at it, without thought of your flanks, and crush the obstacle; the rest is my affair." The execution is even more simple. This is the old French principle, it has always given us success in cavalry combat, and nothing better has yet been found.

THE CHARGE IN WALL.

The two counter currents of opinion on this subject may be stated by the following extracts:

Principles of the Regulations of 1876.—"The cohesion, necessary in the preliminaries of the attack, is less necessary in the charge proper. It is important, in fact, that at the command *charge!* the bravest troops riding the best horses, should not be checked; and that the individual valor, which is to finally decide the success of the charge, should leave, to each, all the advantages of his audacity, tenacity, strength and skill."

Principles of the Regulations of 1882.—"Hold to the most absolute cohesion in the charge because it is by the valor, impetuosity and audacity of the whole body, by the example of the officers, by the action of the file closers, by the moral backing of the supports, and, above all, by the maintenance of order and cohesion, that we assure to the shock an irresistable power."

The object is the same; the two factors are speed and cohesion and if they could both be obtained, at a maximum, at the same time, there would be no discussion.

But with the "wall," the speed will be that of the slowest, most fatigued horse — in heavy ground, hardly a hand gallop.

The boldest riders must then slacken their speed to the gait of the most tired. This charge requires constant practice; it ruins horses; and skill acquired in it, will be lost in a few weeks of campaigning.

Finally, the divergence of opinion applies only to the charge proper, all agreeing on cohesion up to that point. The command, *charge*, is given at fifty to sixty paces from the enemy; there remains, then, but twenty-five to thirty meters to traverse; the fastest horse will gain but two meters in that distance, and the hole he left in the "wall" will be stopped by the rear rank.

The cohesion will, then, be about the same in each case; but, in one case, you allow the hand to rein in, under pretext of alignment; and, in the other, you leave full play to individual dash.

On this short finish of twenty-five meters, we want, not men reining in for alignment, but horses with free heads, at full speed, maddened by the spur, and the shout of *charge!*

The more timid men may close their eyes; but, borne along by their mounts, they will be carried away in the mass by the more brave. As to these latter, among which will figure the officers, they will throw themselves upon the enemy's line, which will be broken up by these individual wedges, each one making its hole and shattering the obstacle.

This is the true French charge which led us to apply to the bravest, who led the others, this fanciful adage: "It is always the same fellows that get themselves killed."

Thus did MURAT charge when the Cossacks, astounded at this fury, reined in their little horses, and stood up in their stirrups to clap their hands in applause.

This charge can always be obtained, even with squadrons out of practice, as also with reservists with whom we may have to fill our ranks. It is, then, the only practical one and it accords with the French character and qualities.

It is the charge which caused it to be said, "The French cavalry is the worst mounted in Europe; it is also the cavalry that rides worst. Nevertheless, it remains the most terrible because it charges at full speed."

THE SECOND LINE.

Its principal mission is to support the action of the first line, but the action of the two lines is successive.

The regulation here again indicates various hypotheses which the chief of the second line must be ready to meet. Is this necessary?

To consider the two most important ones, viz:

I. *The commander of the second line contributes to the success of the first by attacking the first line of the enemy in flank.*

This the author considers inadmissible, as the second line, being so far in rear of the first, can not make this flank attack in time; the first line will have struck the enemy and all will be over before the second comes up.

II. *The first line is repulsed.*

"The enemy, disunited by the pursuit, will be charged in flank," says the regulation; and five separate and more or less complicated evolutions are indicated for carrying out this single provision.

"Too much complication and drill," says the general; "too much time lost, the mere nomenclature and definitions, impose a severe labor to acquire them. It is a veritable Chinese puzzle, certain to lead to immediate errors.

Give us few evolutions and let these be heroically simple, quietly understood by all and without chance for hesitation."

The rôle of the second line is too complicated.

THIRD LINE.

The third line constitutes the reserves and remains in the hand of the general of division. It should, like the other lines, have the strength of a brigade, for it must play the role of first line should the enemy attack in the flank where it is posted.

The regulations, however, reduce it to a single regiment by detaching two squadrons to support the artillery and two more to follow closely the center of the first line and fill the gaps.

The author thinks the rear ranks should be sufficient to secure a solid front, and calls this a return to the three and four-rank formation of the middle ages.

The third line is too far away to be of use in case of necessity (400 meters behind the second); it will not be able to strike its saving blow at the moment when the line is yielding; it will arrive only after the line has yielded and is falling back in confusion.

THE MODERN IDEA.

The formation and the rôle of the lines demonstrate that the principles at present in vogue are absolutely contrary to those that develop the powerful qualities of cavalry.

To what, then, can we attribute the rage of this German method?

Is it the novelty, the fear of falling into the rut of routine, the desire for progress, the hope of being the pioneers of the future? This is, indeed, a fine rôle.

But is this method, in reality, a new one? Let us make a comparison.

Here the author uses the parallel column with startling effect. On the left we have modern tactics (so called); on the right ancient tactics. Paragraph by paragraph we follow the comparison; surely, we are comparing two editions of the same tactics. Ground scouts; flanks, offensive and defensive; reserves; division into three lines; first line; second line; distance between lines; exercises and manœuvres against a supposed enemy, a marked enemy, a represented enemy.

The principles are identical. We have been comparing with the military regulations of the Emperor LEON for the year 886. No misprint: for the year 886.

"Our new regulations, then, date back ten centuries!"

THE FIRST EMPIRE.

Because we were beaten and humiliated in 1870, is it really necessary to copy our neighbors and adopt principles as ancient as the tombs of the PHAROS?

"There is in our annuals an epoch that eclipses all the past—the First Empire. Let us look at that."

General BONIE then gives an exhaustive review of the action of cavalry under the first empire—Marengo, Austerlitz, Schleitz, Saalfeld, Jena, Hoff, Eylau, Friedland, Eckmühl, Essling, Wagram, Niemen, Smolensk, Moskowa, Montereau, Fleuris, Ligny and Waterloo.

From this mass he deduces the conclusion "that during the whole of this period the French cavalry (against all foreign cavalry, without exception,) has known nothing but victory. Employed either in deep columns, as an irresistable mass, breaching and overthrowing everything, or in thin lines, acting by regiment or brigade, we find but one and the same result—always success! And yet our cavalry was worse mounted and rode worse than that of our enemies, which was, as at the present day, remarkably skilled in manœuvreing!"

TACTICS OF THE FIRST EMPIRE.— DISTRIBUTION OF THE CAVALRY.

Under the Empire, this cavalry ceased to be as formerly, invariably on the wings. It was placed, united, where it could best utilize its power for the offensive. There was, therefore, no fixed distribution. Every army corps had some cavalry, but besides this, there is a general *reserve stock of cavalry.* The cavalry of the army corps might be increased, diminished or even entirely withdrawn, during the battle; and, in the same way, the strength of the cavalry reserve would vary during the action.

Apparently MURAT had an enormous mass of squadrons under his orders, but, in reality, this command was but momentary; limited to the

time necessary to execute a charge as at Eylau, where he charged with eighty-four squadrons. In principle, the reserve was but a stock of squadrons.

The Emperor hesitated long, before forming his reserve cavalry into a corps, and when, at last, he did so, many opportunities for action were lost, because the chiefs did not like to have their units detached from their orders, and because the handling of the masses required exceptionally large fields.

FIGHTING TACTICS.

These were remarkably simple. The principle was: The attack, always attack, rapidly and at full speed. To attain this, they first grouped all the force in the hands of the chief; second, manoeuvred by methods simple enough to be followed without error or hesitation.

To await the time of action, the regiments were massed in close columns composed of squadrons deployed one behind the other.

The battle formation for brigade or division comprises two lines; line of attack and line of reserve.

The second line behind the first, or overlapping one wing. With three brigades, two were in first line, the shorter second line facilitating the rally of the first line behind its wings.

The role of the first line was the charge, always deployed straight to the front, but not with the entire line at once. The chief first tried the enemy with a brigade or a regiment, and watched the results before successively engaging the necessary forces.

His orders to his subordinate were very clear: "There is the objective; go at full speed, without thought of your flanks, and overthrow everything." If the first and second attacks failed, the chief placed himself at the head of what remained and led it to the charge.

The second line, with the rôle of support, followed the first at a distance of 200 to 250 paces, 100 to 125 meters, (the modern tactics put 200 to 300 meters between the first and second lines, and 400 meters between second and third).

Where a number of divisions were acting together, each one was formed on two lines as above; the second division was in rear of one wing of the first, the third in rear of the other and farther back, and so on. Save in the exceptional cases of the charges of deep columns at Eylau, Ratisbon and Waterloo, the divisions engaged successively and reformed in rear of the supporting *échelon*.

Note that the divisions flanked each other, but that each unity was separate, with its two lines closely grouped and in the hands of its chief.

Evolutions.—To break from column for deployments, etc., the squadrons broke into column of platoons and formed front into line.

To move to the right or left the squadrons broke into column of platoons and either formed line to the left or right, or changed direction and formed front into line.

Changes of front were considered too slow and too complicated, and were limited to a quarter or a half change.

Flank Attacks.—These were parried very simply by the second echelon, which, by a charge straight to the front, would strike the enemy while still unsteady, from the manoeuvre he had just executed to gain his position.

The flank attack was used not against a charging line, but to disengage a line repulsed and pursued by a disordered enemy, or, again, against a massed body, or against a body in process of formation.

The rally so necessary, whether the charge is a success or a failure, was considered as of the first importance, and the official reports of the engagements prove that the squadrons were thoroughly drilled in rallying promptly.

The evolutions were so simple and easy that they could be executed with horses of average training, and with very ordinary horsemen. In proof of this, in 1814 and 1815 France was invaded by all the cavalries of Europe, well mounted, with many old troopers, and finding, on French soil ground very favorable to their manoeuvres. The French cavalry, on the other hand, (annihilated in 1812) had nothing but conscripts in the ranks, and yet it continually whipped the enemy!

The secret? Speed, and boldness in attack were the two factors. The first obtained by an almost childish simplicity of movements; the second, inherent in the national character.

And thus, by bringing into play their personal qualities and leaving to the enemy the refinements of evolution; in spite of the riding of the Prussians, Russians, Austrians and English; in spite of their marvelous manœuvreing, the French cavalry, bad horses and bad horsemen, knew nothing but victory.

Its chiefs understood that what is one man's meat is another man's poison, and that, by handling Frenchmen on French principles, a result will be attained that cannot be expected from foreign methods.

Have then circumstances changed?

Let us turn to '70.

CAMPAIGN OF 1870.

The author considers only the actions before the fall of Sedan and of Metz. In these actions of the cavalry of the Army of the Rhine, we have to do with regular cavalry formed and trained in time of peace. In the second period, however, the cavalry ranks were filled with raw levies and untrained horses; and, in view of the point which we wish to determine, the study of this phase would be useless.

As to the attack of infantry and artillery our study is soon ended. We find blind devotion followed everywhere by defeat, because of neglect of the principle, *that unshaken infantry, in good position, must not be charged.*

Froeschwiller and Beaumont are but two of the many illustrations of this.

But with the cavalry combat, (cavalry against cavalry,) the result was different.

The General reviews Rezonville and Mars-la-Tour, mêlées as terrific and bloody as any that can be cited under the Empire.

The report of the Prussian staff ended thus: "The introduction of a fresh division of French cavalry completed the *rout* of the last German squadrons."

We have, then, the right to conclude that, in the present as in the past, "The French cavalry, handled (and here is the point) according to French principles, has nothing to fear from the German cavalry, since it has always beaten it.

REQUIREMENTS OF FUTURE WARS.— EXPLORATION.

Marvelous and unrivalled in combat, the French cavalry has always allowed much to be desired in its service of exploration and advanced posts. "Here we must not imitate the Empire."

"The reconnoissances necessary in war were always badly made in our army," said the DUKE OF ROVIGO.

Austerlitz, Wagram, Smolensk, Moskowa, Ligny, Waterloo, furnish examples of French failures in this particular.

But the other European cavalries were also beneath the requirements of their mission, from this point of view.

In 1866 the Prussians and Austrians were completely in the dark at Koniggratz.

In 1870 the Prussians, even when victorious and unopposed by French cavalry, repeatedly lost contact with the enemy for days at a time.

The subject is too large to be treated by the way, and is reserved for a separate discussion.

BATTLE.

The immense space covered by modern infantry fire has affirmed the principle, adopted long ago, that cavalry should not charge unbroken infantry.

It should, however, be held as near as possible to the point where it may be required; and, at the moment when the enemy's infantry is wavering, it should charge from one of the wings of its own infantry, leaving the field of their fire open as long as possible.

But while the cavalry has lost some of its importance in the infantry battle, it has widened its rôle with the artillery.

Gradually losing its heaviness, the artillery has attained a mobility approximating to that of cavalry; add to this the precision of its guns, the terrific ravages of its bursting projectiles, and we have only to bring into play all the boldness and independence of which it is susceptible, to attain the maximum of its power.

This boldness depending upon a support, the infantry can no longer fill the conditions, and this mission becomes exclusively that of the cavalry, rapid enough to keep up.

The intimate union of these two arms opens a limitless field: *Attack of unguarded bivouacs at great distance; occupation of important positions at great distances from the infantry; rapid intervention to fill an interval in the line of battle, or to crush a point which has weakened, &c., &c.*

Suddenly appearing at an unexpected point, it will blast the infantry from a distance too great for reply; and, limbering up, when the enemy have concentrated their artillery to reply, it will vanish, to reappear at some new and distant point. Cavalry support can alone permit this mobility.

At Sedan the Germans supported a galling fire from 200 pieces by a single regiment of hussars, scattered along so as to appear to cover a long line, thus holding back the French and allowing the Prussian infantry time to come up.

This union of the cavalry and artillery will be mutually beneficial; not only will it give the artillery its mobility, but it will give the cavalry an antidote for the infantry fire that now hampers its action.

The rôle of cavalry is, then, enlarged by its union with the artillery, and by the unlimited independence it acquires by the proper employment of its power of fighting on foot.

But to return to the cavalry combat.

CONCLUSION.

We have considered the present French regulations, and consequently the German tactics, of which they are a copy.

We have examined the tactics of the first empire.

We have studied the cavalry action of the last war and the effect of modern inventions. Now for the question: French principles or German for the cavalry combat?

We have copied all the ideas of our conquerors; that was natural; but we have gone too far; we have copied the German system for combat of cavalry against cavalry, when, for more than a century, it has been regularly beaten by the French system.

The regulations of Germany may suit the character of her men and the nature of her horses; perhaps Prussia would make worse use of her

elements by bending them to French principles; for each people has its temperament, its faults, its qualities; and it is beyond dispute that the regulations should take account of this.

Other powers have adopted a cunning formation, and seek success by means of feints and evolution, as we believe, too complicated.

Let us beware of adopting these evolutions of the drill ground, these mathematical figures, these calculations of seconds, distances and directions.

In Germany they say our generals of the first empire were but sabreurs, while those of FREDERIC were tacticians, experts playing with difficulties. Well, let each return to its traditions. We admit that, to-day as formerly, the French cavalry has worse horses and worse horsemen than any other; but that matters little, since, in the last war as under the Empire, our dragoons have beaten them by employing, we repeat it, the principles of the French school and not of the German.

Besides, experiment proves that foreign methods do not apply to the French character. For five years the French have been assiduously drilling in the German school. The result, when we experiment, is failure. For the front attack we deploy too soon; for the flank attack we arrive too late. In the division each line attacks separately, and, instead of one body in the hand of its chief, we have an attack of three isolated brigades.

Down, then, with the Prussian regulations that are stifling our capabilities. For seventeen years we have been painfully plodding along in the furrow traced by our rival. Enough of this decadence; rise and resume direction in the true road of progress.

And, when war breaks out once more, let the French cavalry take the field in full confidence, for the whole history of its cavalry combats is nothing but victory.

Thus is justified the proud device of this work.

THE FRENCH CAVALRY, HANDLED ON FRENCH PRINCIPLES, IS UNRIVALLED IN COMBAT.

CAVALRY RECRUITMENT.

By J. K. MIZNER,
Lieutenant-Colonel, 8th Cavalry.

THE efficiency, usefulness and well being of our cavalry service depends so largely upon the material of which it is composed, that the importance of securing a good class of men cannot be too strongly urged, and entitles the subject of its recruitment to serious consideration. It is a mistake to suppose that the men heretofore enlisted in the cavalry have, as a class, been as good as could be expected to join the service, for the large percentage of desertions proves the contrary.

The subject of enlistments now under discussion, will probably be better understood by considering it in connection with army desertions, for the reason that to the faults in recruiting may properly be ascribed the large number of desertions which continue to occur. In support of this assertion, it may here be stated that the records at the cavalry depot at Jefferson Barracks, show that out of 2,661 recruits received at that depot during the period of about two years, no less than 348 of them deserted before they could be sufficiently instructed for assignment to regiments.

Although no recruits were retained at this depot longer than four months, though well quartered, liberally fed, kindly treated and performing only light duty for purposes of instruction, yet many of them deserted before they had been at the depot more than a month or six weeks.

All these cases of desertion were investigated by boards of officers, who made separate written reports in each case. These reports show principally three things; that no cause could be discovered, that the man was a former deserter and feared recognition, or that he had committed some crime and was in dread of arrest and punishment.

From the fact that these men deserted before they had any sufficient opportunity to obtain any adequate knowledge of the service, and before they could have formed any decided like or dislike for military life, it is evident that they had no honest or fixed purpose in enlisting, but came into the army to secure temporary relief and shelter, or transportation to some new field of adventure.

They were doubtless men of roving, reckless and discontented dispositions, and of that worthless class who fail to find any steady or regular employment, and should never have been enlisted. They probably sought the rendezvous for the same reason that takes men to a pawn broker, and it is quite probable that by a reasonable and proper effort on the part of the recruiting officers, the real characters of these men might have been discovered, and the government have been saved the expense attending their enlistment.

Under the provisions of War Department orders, published in November, 1882, boards of survey have, for more than five years, been investigating the circumstances leading to desertion in the army, with a view of ascertaining the true causes which lead men to abandon the service; and the result of all this inquiry fully justifies the conclusion that the desertions from the army cannot properly be charged to any fault of discipline, mode of life, or treatment of soldiers in the military service; but it is to be mainly attributed to want of character, or inherent viciousness in the deserters themselves.

The immediate transfer of recruits from rendezvous to their regiments, and the more frequent payment of troops have both been suggested and recommended as proper remedies for the evil of desertion. None of these measures will reach the source of the evil, for the reason that it resides with the recruit, and so long as bad men are accepted by recruiting officers desertions will continue to occur, as is well known to officers of experience or reasonable observation.

Besides the expense, loss of time and injury to the service occasioned by so many desertions, the army is brought into disrepute, and the difficulty of securing desirable recruits is proportionately increased.

Cavalry is an expensive branch of our military establishment, and the very important nature and valuable character of the service it is required to perform makes it specially important, and in fact necessary to efficiency, that the best of material should be secured. For the proper discharge of the varied duties of good cavalry, great intelligence, keen perception, quick decision and individuality are most important, and the exercise of these faculties gives the chief value to cavalry. Every effort should be made in recruiting to secure a class of men combining the qualities above named, with physical strength, vigorous health, strong powers of endurance, sanguine temperament, and as far as possible every manly trait that can give grace and vigor to early manhood.

The enlistment of recruits for the cavalry service should be entrusted to officers of experience, and, while just claims for recruiting details in regular turn should be recognized, special fitness must have greater weight in determining which officers can be safely assigned to a duty of such vital importance to the best interests of the service.

To secure good recruits, recruiting officers must be good judges of men, ready and quick in discriminating as to true character and moral tendencies, and who are not easily deceived by plausible and fictitious histories of personal antecedents. Men frequently apply for enlistment who possess the physical requisites with attractive personal appearance, but who are utterly devoid of character, and seek admission into the army only to escape the penalties of some unpunished or undiscovered crime.

Much labor and painstaking care will be required by recruiting parties. They should be composed of the most soldierly of men, as it is fair to assume that the character of the recruits secured will, as a rule, correspond with the class and style of men constituting the recruiting party. The mere flying of a miniature flag in some obscure locality, and the displaying of a few posters, will not be sufficient to secure desirable recruits. The recruiting party must be up and doing. A portion of the detail should frequently appear upon the public thoroughfares beyond the limits of the rendezvous, that the army may be brought to the favorable notice of the people, and that the soldierly bearing, neat personal appearance, evident contentment and cheerful disposition of these representatives, being observed, other good men may be induced to join the service.

The smaller towns and farming regions may occasionally be visited to advantage, as in such places young men generally have some knowledge of horses, are well raised and acquire regular and industrious habits.

It should be borne in mind, in this connection, that the present strength of our cavalry arm of the service is only about 8,000 men; that the ranks of our regiments are already well filled with good material, as the array of service chevrons indicates; that, as the percentage of good material increases, the number of recruits required each year will decrease, and that, at present, not more than 100 recruits per month are needed.

It is undoubtedly possible to enlist 100 good men per month, and it is manifestly proper for the best interests of the service and the country that a higher standard should be established and greater pains taken to secure first-class men. Whenever the men enlisted are taken from the more intelligent and higher grades of society, the service will become more generally known among the better classes, and, as a natural result, an increased proportion of enlistments will be made from the more desirable classes.

The present medical examination of recruits prior to enlistment is very rigid, and generally entirely satisfactory as far as physical soundness is concerned, but does not always settle the question of mental vigor, which is quite as essential to the usefulness and future efficiency of the soldier. The intelligence, moral tone, former occupation, and character of the recruit as to stability becomes a matter for the investigation of the recruiting officer, who should also be satisfied that the applicant for

enlistment has an earnest desire or decided preference for military life above other employments, and has from choice an honest purpose in enlisting.

To accept a recruit who is not likely to develop into a good soldier, or one who is certain to become discontented and unhappy, and consequently of no value, is at once a great injustice to the man and to the government.

With nearly 8,000,000 men subject to military service, it is entirely possible to secure hundreds of young Americans in perfect physical health, full of spirit, activity and enterprise, having a natural fondness for horses and a love of adventure, and general personal characteristics which would ensure an increasing fondness for frontier service, and steps ought to be taken to secure this class of men.

With all the care that can be taken, mistakes will sometimes occur, and it would be far better if recruits were continued in service on probation for the first three or four months, and that the government should reserve the right of discharge at the end of the period of probation for sufficient cause, such as evident want of character, viciousness, or for hidden or concealed physical defects, upon the recommendation of a competent board of officers at the cavalry depot, to consist of the depot commander, depot surgeon, and three senior officers next in rank to the depot commander.

No injustice would result to the men, and the government would be in a measure protected from fraud. No man who is not likely to make a good and acceptable soldier, should be retained in service, and there is every reason why such undesirable men should be discharged before being sent to regiments, instead of being retained to become a burden to the service and a needless expense to the government.

DISCUSSION.

BRIG.-GEN. W. MERRITT, U. S. A.—There is no minor subject of more importance to the cavalry of the United States, than the one which is treated of in the paper we have heard read (Col. MIZNER'S on Enlistments for the Cavalry) and which has been discussed by members of the Association.

I was particularly impressed with the information imparted to the the Association by Lieut. TOMPKINS. He tells us, and he gets it at first hand, from good men of his troop who have remained in the service, that some of the best material which enlists is driven out of the service by the want of proper treatment at the recruiting depots.

This information is confirmed by the remarks of Col. SUMNER, and supplemented by what has been said by Lieut. SWIFT as to the robbery of recruits at some recruiting rendezvous. These matters all deserve to be looked into by the proper authorities and should be changed.

There is no question but that the yearly number of reported desertions is greatly swelled each year by the repeaters or professional deserters. How to get rid of this abuse is a vital question.

Congress has recoiled with horror, simulated or otherwise, from the reasonable proposition that deserters should be tatooed with some mark by which they could be recognized and thus prevented from re-enlisting. So there are no grounds for hope that this plan will be adopted. Besides if it were, it would only mitigate and not remove the abuse complained of, for those only could be marked who were apprehended and convicted of desertion. Statistics show that these are only a small part of those who desert, and not always the worst.

A method to prevent unworthy men, who have been before in the service from enlisting and one which should commend itself to army officers generally is as follows: Let every man who enlists from this time forward be indelibly marked, in some place selected by experts, with a small star or other sign. Let this mark be recognized as an honorable one, signifying the honorable entry into the United States army of the person who wears it. Let the badge be given with the consent of the person who enters the service as any other condition of his enlistment—such as the oath to serve and to obey the articles of war and the officers over him. If necessary to popularize this, officers on promotion or enlisted men on re-enlistment should receive the same mark of distinction.

It is thought that this regulation could be introduced into the recruiting regulations without the intervention of Congress; but if this could not be done there is no question that as it is purely voluntary, Congress could scarcely object to it. As there is no officer or soldier that is not proud of an honorable connection with the army, there are none who should not be glad of a mark which will identify them with it, even after they have left it.

Can anyone doubt the good effect of this rule in preventing the enlistment of any man who has ever been in the service who could not furnish proof of an honorable discharge? It need scarcely be added that evidence of the removal of the mark should operate as a bar to enlistment.

In this connection it has been suggested that the star placed on men and officers should indicate the points at which pressure should be applied to prevent bleeding to death in case of wound in battle or from accident. Whether this is feasible, the members of the medical corps who are members of the Association will be able to say. If it would answer the double purpose it would be well; but I am firm in the conviction that the indelible star should be adopted as an honorable mark of membership of the army, with or without this additional good which might result from its use.

LIEUT.-COL. WOODHULL, Medical Department.—I have had no service at the mounted depot and none with cavalry recruits as such, but the conditions of the general recruiting service, with which I am familiar, are much the same as those for the cavalry. Repeating in substance what I have said elsewhere, I believe that to require testimonials of character while the rendezvous are established as they now are, in certain parts of large cities, will bring recruiting there to an abrupt end. Very few such recruits enlist from any real knowledge of, or love for the military service. Many enter it from the pressure of destitution, for a livelihood, for subsistence and when their immediate wants are supplied, if they have not been favorably impressed, are very apt to desert, being encouraged therein by a lax public sentiment in regard to that crime and perhaps not regarding the solemnity of the oath. Such men have no fixed residence, certainly none near at hand, and for the most of them a verification of their antecedents is impossible. By changing the location of the rendezvous in the cities, a better class of men, although fewer in number, could probably be secured.

Colonel MIZNER'S suggestion of recruiting parties visiting the country, is in the direct line of improvement and has been advised by others; and a few months ago the Adjutant General informed me that experiments would be made, then the character of the men could be known, and through this knowledge of their families there might be better control.

The suggestion of a probationary period, or a conditional enlistment is one that I have long thought would be most desirable during peace. Then the service could be cleared of undesirable characters, who nevertheless do not deserve dishonorable discharge, nor indeed, punishment by court martial, as well as those who prove vicious. This would require a change of law, but it is a matter well deserving the careful consideration and earnest action of officers interested in the welfare of the service.

One of the great drawbacks to the efficiency of the recruiting service is the see-saw condition frequently imposed upon it. At one time enlistments are confined to men discharged with excellent characters, at another great exertions are urged to fill numerous vacancies, and again for considerable periods recruiting is almost or entirely suspended for lack of funds. It should be comparatively easy for the central authority to arrange for a steady flow of enlistments throughout the year, reference being had to the well established variations that the seasons cause.

In time of peace it is almost impossible to find young men with intelligent martial aspirations, who are otherwise acceptable. These qualities must be developed after enlistment. We cannot expect merely to engraft the technique of the service upon special qualities already found. To develop them, it is an old story to say that the men must be carefully nurtured as soldiers, both at depot and in the ranks. But this is not meant to imply that there is not one class better than another from which selections should be made.

The forced sale of clothing at rendezvous, as mentioned in discussion, is a grievance, but it is not in itself likely to cause desertion. A man who seriously intends to become a soldier is not apt to be deterred by the loss of civilian clothing that he would have no opportunity to wear for at least five years. But he should be allowed opportunity to get its full market value, which at the best would be very little for second-hand garments. A better plan would be to establish the conditional enlistment, and to allow each recruit to wear his civilian clothing to the depot, where it should be safely retained by the government until his status is determined, when it may be returned to him or be offered for sale, as may be proper.

I would accept with many grains of allowance the allegation made in the discussion of an excess of fatigue work at depot. As previously remarked, I have no personal knowledge of the operation of the cavalry depot, but, judging from observation elsewhere, I doubt whether more labor is done by recruits, some temporary emergency excepted, than the clear police necessities require. But many men, impressed with the idea that they are to have no occupation but that of riding a horse, look upon all shovels and barrows as personal grievances.

The practical deficiency of the bread rations of recruits (I still speak only of the infantry, but presume it is the same for the cavalry,) is an evil. Bread is always an acceptable food, either to replace the coarser parts of the ration until the unaccustomed stomachs can be brought to assimilate them, or to add to their nourishment in the men who join underfed. But repeated attempts to have it increased beyond eighteen ounces have failed.

It is, moreover, a matter of notoriety that the depot at Jefferson barracks, although lately improved, has been a distributing centre from which typhoid fever has marked, year after year, the course of men drafted from it, and that the local mortality has been excessive, with a corresponding depression of spirits. When the law requiring the mounted recruits to be assembled at Fort Riley takes effect, these men, then at a healthful post, with the example of the trained troops of the cavalry and artillery school under their daily observation, should be more easily moulded into efficient soldiers, and be more contented in their probationary period, from personal knowledge of the standard they will be expected to attain.

THE INDIVIDUAL SOLDIER.

By MAJ. E. V. SUMNER,
5TH CAVALRY, BREVET LIEUTENANT-COLONEL U. S. A.

I PRESUME it is the intention of this Society to discuss all points and subjects pertaining to the cavalry service, from the shoe and shoeing of the horse to the crown of the rider's head, each member having the privilege of selecting his own subject.

For the interest of the Society generally, members furnishing papers to be read and considered at home or published abroad, should write on those subjects which have in their service interested them most, or upon which they have some special information.

From books and papers, if we choose to apply ourselves, we may learn of the operations of the past, and articles written on those subjects are interesting, because they carry with them to the finish true accounts of the accomplishments of those great men in our profession whose examples we wish to follow. In studying those examples it becomes us also to take heed of the present, in which we are interested, at least, to the extent of making proper preparation for the future.

In the present we have the daily actions of men immediately surrounding us, and we are called upon to determine what our fellow soldier is by what he says or does. We are sometimes led to doubt the loyalty of our most intimate friends and are distrustful of all. This should not be the case with soldiers, for in all our undertakings we are so entirely dependent upon each other that, to insure success, we should know and trust. WILKISON, in his "Life of a Private Soldier," says: "No matter how brave a veteran soldier may be, he relies on the men on either side of him to stand there until they fall. He relies on them to accompany him in the advances and to be by his side when slowly falling back before a superior force. It is essential that a soldier hears the voices of his comrades when he is charging. He must know that his comrades are as staunch fighters as he."

The past is "as a tale that is told," and its burdens now rest upon the men of our time. A proportionate share of responsibility is thrown upon

every officer and enlisted man in the service to-day; but the portion allotted each of us is so slight that we are apt to think little of it, and, entertaining only a vague idea of our individual obligations, we scarcely realize their importance until we are aroused by some extraordinary occurrence. It is then that those who are unprepared prove to be failures and better men come to the front.

It is hard to make a young officer, who is living an easy life, following beaten paths, believe in responsibility until it actually comes upon him. It is difficult to impress upon the young enlisted man the fact that some of the characteristics of a good soldier must come from beneath his own blouse and must be contained in his own actions.

There are few men whose capabilities extend in all directions, and those who have had a certain amount of experience in life are apt to doubt any man's doing all he advises others to do. In other words, it is quite an easy matter to indicate what a soldier ought to be, but quite another to be one. We will, therefore, leave for abler pens the subject of what the soldier should be, and will look at him as he is, as we find him and see him every day. There can be no reason why the personnel of the cavalry should not be discussed with quite as much interest to the service as discussions held upon arms, ammunition and other material. I approach the subject, however, with the knowledge that many officers think there can be no improvement made in this respect; that their men are all good men, and not to be improved upon; hence they are disposed to let well enough alone. On this principle flint locks and paper cartridges were good enough. Why change to breech-loaders and metallic shells? While it is true that a majority of our enlisted men are of the metallic sort and have the proper ring about them, still some are of the paper kind, good when not drunk; good if everything is all right, but not to be depended upon in bad weather.

It is in support of the reliable men we now have in the service that reform is required; that those men who are not worthy to wear the uniform, and who lower the standard of the enlisted soldier in the eyes of the community, should be rooted out and kept out. No man should be accepted as a recruit who can not bring credentials or show good character by testimony of reliable persons. This rule once adopted and known throughout the country, a better class of men would undoubtedly present themselves for enlistment. Men who now pass the rende..ous daily and think only of returning provided they can do no better, would not hesitate to enter and enlist if they knew good character to be a necessary qualification, and felt that association from that cause would be an object. Few good men enter the service, I imagine, without giving the matter some thoughtful consideration; if, then, the character of the occupation

can be raised to a point where all thought of degradation is out of the question, it would doubtless have the double effect of inducement to good as well as hindrance to bad men.

But with all due care and taking every precaution, we are bound to get bad characters occasionally; men who develop evil tendencies after enlistment. Such men should be discharged at once, instead of being kept in service and ordered to be disciplined. I do not believe that any amount of army discipline will correct a morally bad man; nor do I look upon the army as a training school for morals, the discipline of men for our purposes having altogether a different bearing. We enforce discipline in order that men shall be brought to render effectual service in time of need. Each soldier, therefore, should be treated as an individual in whom the government has taken a special interest and intends to improve and develop for its own benefit.

BANCROFT says: "The object of all earthly experience is to develop the value of the individual man; and the object of society, of institutions and of government is to protect the rights and to favor the development of each man of the race." If this is true in regard to society and the institutions of men in civil life, why should not the selection and improvement of the individual soldier add strength to the mass?

The training, government, subsistence and most effective use of men at arms has been the study of the greatest soldiers of all ages.

Those men who guide and rule, the rulers knowing the necessity of having force at hand, make the proper government of that force a matter of first consideration and necessarily so, because to be useful to them at all it must be reliable and effective. To be reliable is to be subordinate; to maintain this necessary subordination, discipline is resorted to, and to attain that we have to come down from the consideration of battles and charges in mass to the less interesting subject of the individual soldier.

If there is ever a time in the life of a soldier when he needs care and kindness as an individual it is on his first entering the service. I presume almost every officer has experienced the feeling of having wasted sympathy on undeserving men. This is one of the experiences of life among men. The unfortunate part of it is that it falls so heavily sometimes upon men who really are deserving. It too frequently happens that officers will not take the pains to discriminate in their treatment of enlisted men, between an intentional or an unintentional mistake. Sufficient allowance is not made for the ignorance of men, nor is sufficient patience exercised in the way of overcoming this ignorance.

Every recruit who joins the army is more or less unjustly treated, and each has to receive many hard knocks before he reaches a point where he can look for kindness.

The character of the man goes far toward establishing his status and the man who does not possess the necessary firmness to await the time when he can declare himself, deserts. This may account for the large number of desertions from our army in the first year of enlistment, and as the greater number of desertions take place within that time, the cause may easily be discovered. The men are new to the service and unfamiliar with restraint. They are mixed in with all kind of characters good, bad and indifferent, at the rendezvous, and every discomfort attends the journey from the rendezvous to the depot. While at the depot there is still more crowding and sometimes not even a bed. All these trials have to be endured for three months or more, and at the end, men who enlisted for certain regiments in the south are assigned to regiments in the north and vice versa.

Thus it is that every step on the part of the government has been contrary to that which was expected by the recruit and in utter despair of any change for the better the man deserts.

There are quarters at our cavalry depot at Jefferson Barracks for probably 400 men; that is to give necessary room and comfort for all. They frequently have over 600 there. The men have no place to go, no amusement or recreation, and a large sick report prevails, for it is one of the most unhealthy places in the United States. Those who become discontented and homesick have plenty of time and cause to regret the step they have taken and to mope over the situation. The place has a gloomy appearance; there is nothing bright or cheerful about it, and the men resemble convicts rather than soldiers. If an experience of this nature lasting three months, will not take the spirit out of a young man who entered the service with expectations of a bright and happy life, as he understood that of a soldier to be, I do not know what will do so. A depot may be a necessity but it would be far better for the new men and for the service, and would decrease desertion one-half if recruits could be enlisted for regiments they select and be sent to their stations, their future homes, with as little delay as possible.

It is unreasonable to suppose that officers selected from regiments and sent to depots are going to take very much interest in recruits for the general service, and therefore, the sooner a recruit gets out of their hands and under the protection of his proper officers the better.

The company is the true and only home of the soldier. In the company the new man ceases to be a recruit and learns to be a soldier in the shortest possible time. There he has the care and protection of his own officers; the affiliation of comrades wholly in sympathy with his own views; every comfort in garrison that a soldier should have—his own bed and bedding, his private box, his uniform and equipments complete. Whatever he has is under the protection of all and what he lacks is made

up to him by comrades, who are closer than brothers. Here there is no deception; the captain is intimately acquainted with every man, and each man has his true value.

The better a true man is known the more advantageous it is to the man and the more quickly comes his preferment; the sooner a rascal is discovered the better it is for the honest men. The finer points of the moral law are not particularly observed by soldiers, but the lines are drawn so exceedingly close on some offenses that the offender has soon to choose between reformation or desertion. It is seldom that a man of any standing in his company deserts. When an occurrence of this kind does take place his comrades can always give a reason, and it will be found to be not "incident to the service."

The present management of recruits seem to be in contradiction to the requirements of men, making so radical a change in life, from the freedom of a citizen to the restraints of a soldier; I mean the better class of men, the kind of men we want.

It is not to be supposed that a sensible man entering the service as a private soldier will have extravagant expectations, but it would be better for the man and the service if even ordinary expectations were fulfilled, and still better if good and fair treatment exceeded expectations.

The Adjutant General of the army reports 6,168 accepted recruits last year: 3,788 native born, 2,380 foreign; 5,587 white, 581 colored; 15,535 applicants for enlistment—72 per cent. of the whole number were rejected by recruiting officers on account of physical and mental disqualifications, which shows that notwithstanding the pressing need for recruits, the officers charged with this important duty exercise due care to prevent the enlistment into the army of men not fitted for the duties of a soldier.

It appears further in this report that during the year 2,240 men deserted from the whole army, and of that number 1,105 were men assigned to regiments from depot. Due care having been exercised by officers in making these enlistments, there must be some good cause for the desertion of so large a number within the first year, and inasmuch as the desertion from depots is more than double that from the whole army, persistence in that system, unless some radical changes are made, may be fairly questioned. The lengthened detention of recruits at Jefferson Barracks, an unhealthy post, and so near the outskirts of a large city, where every temptation is put in the way of young men, is the ruin of many good men, and doubtless, the cause of the desertion of numbers who would have been satisfied and contented in their companies.

In the cavalry service alone 2,151 men were received at Jefferson Barracks depot from January 1st to December 31st, 1887. During that

year 1,739 men were sent to regiments, 137 were discharged at depot, 297 deserted, and 19 died.

Of 475 deserters from all the cavalry during the year, 297 men deserted from depot.

In support of the statement of the depot being unhealthy, I submit a comparison between the death rate at that station and the rate at others.

The death rates for the last year for the whole army was, 8.8 per 1,000. At Davids Island, 7.9; Columbus Barracks, 2.7; Jefferson Barracks, 21.25.

I also submit an article taken from a late number of the *Army and Navy Journal*, touching the matter of desertion from depot:

"In a descriptive list of 'deserters,' received this week from the headquarters of the Recruiting Service, U. S. Army, we find recorded the names of 204 deserters. Of this number 161, or more than two-thirds, were recruits who never got further than the rendezvous or depots; eighteen were from the Engineer Battalion, and the remaining twenty-five from regiments of the line. That this large number of recruits should desert so soon after enlistment is a peculiar phase, and one well worth looking into. Perhaps one cause may be the monotony and isolation of the recruiting depot, which perhaps does not come up to the recruit's ideal of a soldier's life, nor give him the best idea of what his military career is to be. Perhaps if recruits on enlistment were drafted at once to regiments and there broken in, in the old-fashioned way, the result might be different."

The recruits having passed their trials and troubles at depot, we now follow them to their regiments.

They are sent from depot in small detachments, and on arriving at regimental headquarters are assigned and sent to troops, the men being allowed to select their troops when it can be done without injury to the service. As affairs are now conducted, the future for these men, if they behave themselves, has in it a life of comparative ease and comfort, our soldiers are never overworked, on the other hand idleness is the bane of our army. There is drill if the weather is not too boisterous, or if the mud is not too deep, when in other callings they are working for themselves, are out and about, attending to their duties, rain or shine, but if any commanding officer should undertake in these days to carry out the precept of old FREDERICK, he would be pronounced a crank at once, and would be condemned in numerous unofficial communications to headquarters on his official acts.

Great improvement has been made in late years towards making the enlisted man more comfortable in his quarters. It is right and proper that men should have spring mattresses, feather pillows and every comfort and convenience the government can afford. Good food, clean well venti-

lated quarters, clothing to suit the climate, reading rooms, bath rooms and certain facilities for amusement, but when this has all been furnished the soldiers should be required to make a proper return, and that is a full day's work for a day's pay. The idleness of our soldiers in barracks is the cause of many disagreeable criticisms and it frequently reaches a point where the soldiers themselves complain of the monotony of their lives, and no doubt not a few desert on that account. We pay so much regard to the matter of having everything out doors just right for comfort, that we drag along from November to April or May in a state of hibernation, waking up in the spring to find that last year's work has to be done over, and that the enforced idleness of many months render it a labor, all of which might have been saved by a continuance of instruction indoors, when it could not be done outside, but the day should be an exceptionally severe one when able-bodied men cannot stand a certain amount of exposure.

There is so much time and so many ways in which men can be improved that there is really no excuse for having so many ignorant men in the ranks of our army; some of whom are even allowed to go through a whole enlistment without being able to sign their names to the muster rolls.

When we come to consider the expense of maintaining a troop of cavalry for six months, and find that the organization is less efficient on the first day of May than in the November preceding, it looks serious, and when that is multiplied by 120, the cavalry arm, when not efficient, may well be called an expensive luxury. Some troops are in better condition and are far superior to others, but we have yet to see any troop where every man in the ranks is able to perform all the duties of a cavalry soldier, and until all men are so instructed there is something left for the officer to do, and I may here add that those men whom we deem well instructed in every particular have generally picked up their information or have a natural talent for observation, and have not become the thorough soldiers they are through instruction.

To indicate what is expected of the individual cavalryman of the future, I will present the remarks of Col. HOME on the subject:

"The position of cavalry should be on the flanks; that is to say, there should be no mass of cavalry on the roads following or leading the army, but the whole country should be filled with horsmen working on a broad front, pushing on at all times, if checked simply halting, while those on the right and left, turn whatever stops the advance. Thus the cavalry of an army resembles more than anything else the feelers of some insects, pushed out in front and conveying impressions to the animal, which guide its movements. To accomplish this duty thoroughly and completely, the cavalry soldier must be trained as an individual, not merely as a unit of

a large mass. His individual knowledge and ability must be continually improved and strengthened, while at the same time his power of acting as a fraction in large masses should be kept steadily in view. Thus, as previously said, the cavalry soldier requires to be all he has ever been, together with a great deal more he has hitherto not been."

This theory is deduced from the experience of service in late wars, and it will be seen that the proper instruction of the individual soldier is considered an absolute necessity. To any thoughtful man who is now or may become a troop commander, and who may be called upon at any time to put this theory into practice, or may have the responsibility thrown upon him of gaining important information through the individual troopers under his command, this subject must be of sufficient importance to cause a desire on his part to be prepared. Therefore no day should be allowed to slip by without some advance toward the end desired. It must be admitted that we have a great deal to do to bring the individual soldier up to the standard where he can be thoroughly relied upon in every particular of his duty, and that merely taking care of the horses during the winter months and drilling only in summer will not accomplish the work.

It is needless to say anything about the responsibility for the situation of to-day. In the past our cavalry proved equal to the occasions; that is to say, it was as good as it had to contend with; but improvement in arms and changes in the management and disposition of soldiers in battle calls now for a higher standard, and it is to be seen whether those in authority will recognize the fact. There is no failure on the part of the government in furnishing every requisite for efficiency. We have some splendid men in the ranks—men capable of learning or doing anything. The horses, generally speaking, are good, and the arms and equipments excellent. Being well supplied with the best material, we certainly ought to be making some visible improvement; but is our cavalry really any better to-day than it was this time last year? We seem to be drifting along, holding our own, to be sure, but making no advance. The time will come when an inspection of cavalry troops will be incomplete when it does not reach the individual soldier. To-day the inspector is satisfied and will give a good report on seeing troops and battalions move in line or column at the walk, trot or gallop, the movements, if tolerably well executed, concealing from his view the actions of individuals, who perhaps have not been in the saddle since the last inspection and who are as ignorant as can be of all their duties. Under these circumstances post and troop commanders, the men really responsible, get a credit to which they are not entitled, and department, division and army headquarters receive reports which, as far as the efficiency of the individual cavalryman, as required to-day, is concerned, undoubtedly lead to false conclusions.

I have intimated that the cavalry of an army have made no advance within the past few years. (I except the matter of rifle firing.) Nor do we see or hear of any steps being taken towards improvement beyond the usual summer drills, which are the same year after year. The old strain is still kept on the cavalryman, and he is expected to do everything about the post in the way of guard, fatigue, etc., that an infantryman does. He receives no more pay, although subjected to considerable expense in the purchase of extra clothing, cleaning stuff, etc. The result of this is that some of our best men, after serving one enlistment in the cavalry, re-enlist in the infantry. It would be a great point gained if we could hold our old men, as a man in the second enlistment is worth much more than a recruit. I do not say that the cavalryman has too much to do; he is really not occupied half the time in winter; but his employment should be of a different nature—should be confined to his arm of the service, and some distinction should be made between the mounted and foot soldier, if for no other reason than to prevent our losing so many good men, the transfer of an experienced cavalryman to a foot regiment being a greater loss to the government than the pittance it would require to retain him as an expert.

In the matter of drills, exercises and instruction in our army, the management is generally left to the discretion of post commanders. We are loth to express it, but we feel that in some instances a corps prejudice exists which prevents progress. A small cavalry command at the tail end of an infantry garrison will have very little chance for improvement other than that which has to be done, and the cavalry officer who seeks to perfect his men and asks for time or relief from other duties, for that purpose, is silenced if not ridculed. A cavalry officer in command of mixed troops feels a delicacy in showing a preference for his own arm and so it happens, that in either case, the cavalry is not allowed the opportunity it should have. Colonel HOME says: "The tendency is for everyone to think his own branch the most important," that "such feelings are very natural and in the lower grades often do much good, but as men rise in the service it is desirable that they should know something of the duties of other branches and the difficulties others have to contend with. Cavalry officers falling into command of mixed forces will not then expect their infantry to gallop, infantry officers will not seek to bind the cavalry to the pace of their infantry."

This calls for a liberality of feeling which, on the part of post commanders, in our service, is not often exhibited, and when we consider that they are the officers who have the full control of the enlisted men, and have almost unlimited authority in all matters of drill and discipline, the lack of it is disastrous. There are as many opinions in regard to the proper way of exercising command as there are men to give commands.

Some captains are best when left to exercise their own judgment in controlling their men, while others in the same command have to be followed up closely. Some, if the responsibility is thrown upon them visit their troops and quarters frequently and have a thorough knowledge of everything pertaining to their commands, while others sign their morning reports in bed at the hands of a servant, perhaps, and seldom see their troops or only see them when compelled to do so; giving as an excuse for such neglect the opinion that men in quarters should not be too often disturbed by the presence of the officer; such an opinion is nothing less than a mere personal convenience to the officer who holds it, and such an officer not only makes a convenience of his troop but also compels the government to expend money in his pay for which it gets a small return. It is not the intention in this paper to touch upon the duties or discipline of officers generally, but where any military system admits of such neglect as has been mentioned, it may be seen that some advantage might accrue to the enlisted man as an individual, and to the government as well, if it were different.

This Association claims to have for its object the advancement of the cavalry service generally.

The instruction of the younger officers now going on is one step in the right direction and will doubtless cause all officers to study more than they have been doing, and to inform themselves in order that they may not be left entirely in the rear. But what are the uses of advanced theories if no practical application is made? Wherein is our service to be advanced or benefited if after we read and study the campaigns of other armies in the field, we close the book and permit the irksome details of our own duties to go on without improvement? It is fascinating in the extreme to read of the brilliant charges and manœuvres of large bodies of cavalry in the field, but awfully stupid and annoying to come down to an inspection of Private So and So's underclothing, still it is important that the private have his clothing and it is essential that the captain know he has it, without regard to what was done at Mars-la-Tour or what was not done at St. Privat. In other words if we expect to make any real advancement the officers, whose duty it is to look after the instruction and improvement of the individual soldier, must be at their posts constantly for practical work; otherwise the magnificent theories set forth for our instruction will prove as useless as an idle dream and our superiors although they may find us well up in the history of the past, may meet with disaster in our not being able to grasp and perform the simple duty required to meet a present emergency. It is useful, as well as ornamental for us to be as well informed as possible, but as subordinate officers, officers directly in command of enlisted men, there can be no doubt where our first duty lies, or what is most important for us to know. Let us then in our search after knowl-

edge, in fields of information more properly belonging to our superiors, not forget to impart some practical lessons to inferiors in whose hands, after all is said and done, lie our success or failure. In peace and in garrison the officer has every advantage, has no anxiety and no fear, the daily routine of his duty goes hand and hand with his comforts and amusements, but imagine the feeling of a captain, who, brought with his troop, suddenly in the presence of an enemy, with a desperate duty to perform, having neglected his duty to his men, now feels a want of confidence in them and they in him. Under like circumstances the officer who has been true to his subordinates now commands their respect and affection as well as full obedience, and has in that sufficient strength to enable him to engage the enemy with every confidence of success. The best and strongest of us require encouragement occasionally, and when it comes from a superior it seems to have double weight. The soldier who never gets a pleasant word or receives the benefit of a kind act from his captain will not be likely to do more than he is compelled to do and will escape that if possible.

Strict justice to all, kindness to those who are trying to do well, firmness with those who try to do wrong, should be the rule. Favoritism in the army is not confined to high places. Hundreds of enlisted men are thrown into confinement for the most trivial offenses, and many are retained at hard labor under guard for months awaiting trial and afterwards found innocent of any offense. On the other hand, not a few favorites escape who should be punished, and the presence in the ranks of many disreputable characters is a standing disgrace to the army at large, as well as a constant annoyance to the respectable men of the organizations to which they belong.

Within a few years any man who could pull a throttle valve was supposed to be an engineer, but the loss of many lives and great destruction of property soon taught railroad authorities that the best aud most intelligent men they could employ were the cheapest for the specific duty required. From the experience of the past, as already cited, it is evident that the cavalry service of the future will require the employment of men sufficiently intelligent for their specific duty. The proposition to have selected men for the cavalry will, I know, at first meet with antagonism from other corps; but it should not when it is understood that the duty required is for the safety of all and for the benefit of the whole army. Any infantry officer coming in command of mixed forces, and feeling the anxiety and responsibility of command, would be greatly relieved in mind if fully assured that his outposts were well guarded—that those posts were held by intelligent, reliable men, who would not fail him, and that he and his foot-sore infantry could obtain their well-earned rest in safety. This assumption is submitted for the consideration of infantry officers who

may command cavalry, but who may now be disposed to question the importance and underrate the value of the steps necessary to improve and advance the cavalry. This Association, although distinctively for cavalrymen, as an inducement has thrown its doors wide open, and invites the entrance and affiliation of every officer of the army and navy. While we have no ambition to surpass others, our aim is simply to excel in our own line where excellence may be required to perfect the whole.

There is no intention in this paper to underrate the rank and file of the army. The heart of every true soldier, whether he is officer or private, goes out to his brother in arms, in the ranks or out of them, provided only he be true, so that the individual soldier, when he can respect himself, and, when he performs his duty faithfully, need have no fear of the criticisms of any man.

CAVALRY RAIDS.

By W. L. ELLIOT,
Colonel and Brevet Major-General, U. S. A., (Retired).

THE request that I should become a member of the U. S. Cavalry Association, from an officer of the 1st U. S. Cavalry, on the rolls of which I had been borne as a major from November 5, 1861, to August 31, 1886, and lieutenant-colonel from that date to the date of my promotion as colonel 3d Cavalry, April 4, 1878, was accompanied by a request that I should give a paper on my "experience in cavalry raiding in the western army."

More than a quarter of a century has elapsed since I was a participant in the first raid made by any considerable body of cavalry from either the Union or Confederate armies. Its details are almost as fresh in my memory, as if of recent occurrence. The army of the Mississippi, under the command of Maj. Gen. John Pope, was, after its brilliant operations around New Madrid, and Island No. 10, transferred to the vicinity of Corinth, Miss., early in the spring of 1862.

The Army of the Mississippi consisted of three divisions of infantry, one division of cavalry and — batteries of artillery.

The division of cavalry was commanded by Gen. Gordon Granger; its second brigade, consisting of the 2d Iowa Cavalry and 2d Michigan Cavalry, I had the honor to command, leaving Lieut.-Col. Edward Hatch, 2d Iowa Cavalry in the immediate command of the regiment of which I was the colonel. The 2d Michigan Cavalry, of which Gen. Granger had been colonel, a very superior body of men, was without an experienced commander. Captain, now Lieutenant-General, Sheridan, was on duty at Gen. Halleck's headquarters, as acting quartermaster, and it was with much persuasion and reluctance, that the General allowed him to take the appointment of colonel of the regiment.

The brigade covered the left flank of the army of the Mississippi, and of the entire army in front of Corinth, its pickets extending well to the left and making almost daily reconnoissances.

General POPE, after the subject had been suggested by him and discussed, proposed that a raid should be made by a cavalry command. To this Gen. HALLECK consented, although Gen. GRANGER did not favor it. Gen. POPE conferred with me, and I told him I would endeavor to carry out his views to the best of my ability. The orders were issued, and the necessary preparations made. The 2d Iowa Cavalry and the 2d Michigan Cavalry, each numbered from 900 to 1,000 men. It was ordered that only effective horses should be taken, so that from the 2d Iowa about 500, and from the 2d Michigan about 400, officers and men were selected. Five days rations of bread, sugar, coffee and salt were issued; for the meat ration we were to depend upon the country. Forage for one night was also taken. The command was not encumbered with pack animals, ambulances or artillery. Gen. SHERIDAN dined with me, and about dusk of the 28th of May, 1862, the command started on its march.

I had reported to Gen. POPE's headquarters, to take leave of him and also of Gen. GRANGER; the latter bade me good-bye with the remark, "There goes the finest brigade of cavalry in the army. BEAUREGARD will catch you and hang you."

The general impression was, that we were going to reinforce Gen. O. M. MITCHELL, at Huntsville, Ala., or for some service in that direction. Our march was to the eastward a few miles, where we bivouacked for the night. The next day we continued the march to and beyond Iuka, and from there we marched more in a westerly course, making a noon halt at Pepton's Mills. The enemy did not seem to have any scouts watching our movements, and but few able bodied men were encountered in our march. A couple representing themselves as journeying to the residence of a clergyman, for the purpose of being married, were informed that the wedding would have to be postponed for a few days, as the expectant groom would accompany us.

So unexpected was the advent of the command into the enemy's country that a detachment, I think a company of cavalry, rode past the flankers and up to the column before they discovered their mistake, thinking we were Confederate cavalry, and, of course, became our prisoners. In the afternoon our march was continued southerly until dark and then directly for Booneville, on the Baltimore & Ohio railroad. An hour or two before daylight we halted about a mile from the depot, not wishing to reach the latter until light enough to see. Our approach to, and surrounding of, the depot was a perfect surprise. The main body of the command was held in readiness for an emergency, while detachments were sent below and above the town to destroy any culverts, bridges or water tanks found. At the depot was found an engine and train of box cars, with platform car, on which were loaded artillery and

other supplies. The depot building was also filled with stores, all of which were fired and destroyed.

The woods adjacent to the depot contained a large number of sick and convalescents. These, preparatory to the firing of the building and train, were directed to be removed, and part of my command assisted in their removal. After an hour or two's delay and the return of the absent detachments, the command commenced its return march to camp, near Farmington, having met with little opposition, and, not being advised of the evacuation of the works around Corinth by the enemy; otherwise the return march might have been made by a less circuitous route, and the command might have been employed on the flank of the retreating enemy. The command reached its old camp the night of the fourth day after its departure, to find that the enemy had retreated from Corinth, and the next day joined the army in the vicinity of Rienzi, and that afternoon was employed, with the addition of a battery of artillery, in making a reconnoissance toward Blacklands, and within a few hours, being able to report to the commanding general that the enemy was yet in force in our front.

In addition to the destruction of property at Booneville and the alarm created at the headquarters of the Confederate commander, as was afterwards learned, about ten locomotives and two hundred box cars fell into our hands between bridges destroyed south and west of Corinth. I was informed by Gen. McPherson, then superintendent of the railroad, that this transportation enabled him to supply the army from Columbus, Ky., until additional transportation was sent from the North, the Tennessee river being too low to admit of the passage of the smallest class of boats.

The loss in my command was comparatively small.

Raids of any kind, in my opinion, are demoralizing to those engaged, and should inflict great damage on the enemy to compensate for the effect on the discipline of a command.

The 2d Iowa Cavalry was composed of comparatively young men and mostly farmers' boys—fine horsemen—and, having the regiment under my own supervision from September 14, 1861, until it was put in the field in front of New Madrid in March, 1862, it was well disciplined, and in drill, at least, equal to any cavalry regiment in the service.

The 2d Michigan Cavalry had also the advantage of being disciplined and drilled by a cavalry officer of experience, and, with the assignment of Sheridan as its commander, his influence was soon apparent. Such troops are better for raids than the undisciplined or imperfectly instructed.

My experience in this first raid suggested that the organizations for other raids should have the addition of an ambulance for each regiment,

two pack animals for each company and regimental headquarters, a four-gun battery of horse artillery to each division, a section of same for a brigade. Also that crowbars, sledge-hammers and axes should be taken for the purpose of loosening rails and switches and cutting fuel for burning ties and twisting rails. I hope that this subject may be continued by others who have had the experience of raiding in both the eastern and western armies.

THE RUSSIAN REGULAR CAVALRY.

By E. A. ELLIS,
First Lieutenant 8th Cavalry.

ON account of its vast extent, the Asiatic origin of its peoples, and the nomadic character of many of its present inhabitants, Russia is peculiarly adapted to the development and extensive use of cavalry. Although a study of the Russian cavalry is always interesting, the subject, at the present time, has special interest for the American military student. On account of its extent, poor roads, and the natural adaptability of its inhabitants to the horse, the conditions in Russia are similar to those existing in our country at the time of the last war. Therefore we are not surprised to learn, that the lessons of the rebellion have borne fruit in Russia; and that the tendency there at the present time is to give great importance to the raid, and to fashion all the cavalry on the model of the mounted infantry or dragoons, rather than on that of regular cavalry, in the ordinary continental sense of the term. Well informed Russian officers maintain that an army possessing a large number of mounted men capable of being used as infantry has great advantages over that army that does not have them; and that any cavalry without them is unsuited for the requirements of modern warfare. While in no way neglecting the training of their cavalry, *as such*, they go farther, and, using the horse as a means of rapid locomotion only, deliver the trooper at the required place in the shortest time, there to cope with infantry on its own ground, with its own weapons, and in a kind of combat learned from it. After the combat the horse again comes into use to bear the trooper, if victorious, in pursuit; if defeated, to a place of safety.

To carry out these ideas the Russian authorities in 1882 reorganized the cavalry, and by this reorganization all line regiments were made dragoons, and, with the exception of a few guard regiments, all other kinds of cavalry were abolished. To enable them to engage infantry, they were given a similar weapon, the Berdan rifle with a shorter barrel. The cavalry regulations expressly declare that the troopers are to be taught to pride themselves on their ability to fight on foot, and to take the place of

infantry. The cavalry target practice is similar to that of infantry. The fighting on foot movements conform, as nearly as circumstances permit, to the open order formations of the infantry.

The aim of the Russians is to make the cavalry feel its own independence and its ability to take care of itself under any and all circumstances. With this view they are taught to throw up temporary earthworks and to charge with the bayonet. As says an English writer: "It is hoped that without sacrificing the efficiency of cavalry in its primary employment, that of fighting on horseback, it may be possible at the same time to train it so thoroughly for dismounted action as to place at a Russian general's disposal a great mass of horsemen provided with entrenching tools and fit to measure themselves on foot with the enemy's infantry, whilst equal, when mounted, to any encounter with his cavalry." But little value is placed on the revolver; on foot the trooper's weapon is the rifle; on horseback, the saber.

To show that all this fighting on foot and general service as infantry has not caused a deterioration in the *cavalryman*, I will mention one fact only, viz: that, in their drills, sections and squadrons practice in charging against one another, passing through one another's ranks. If they are not good cavalrymen this manœuvre will show it; for the good seat, quick eye, and thorough command of the horse—all requisites of good cavalry—are necessary to a completion without accident of this movement.

The regular cavalry is composed of: First, ten regiments of the guard, comprising:

4 of Cuirassiers,
2 of Dragoons,
2 of Lancers, and
2 of Hussars,

And, second, forty-six regiments of dragoons, forming the cavalry of the line.

The four regiments of cuirassiers of the guard have four squadrons each, all other regiments have six squadrons. Each squadron, in peace or war, is composed of:

1 Squadron Sergeant-Major,
11 Sergeants, (4 senior, 7 junior),
3 Trumpeters, (4 in Cuirassiers),
8 Lance-Corporals,
120 Privates,
143 Horses.

The squadron is divided into four sections of sixteen files front each.

The regimental establishment for a six squadron organization is:

OFFICERS AND CLASSED OFFICIALS.	*War.*	*Peace.*
Regimental Commander	1	1
Field officers	2	2
Squadron Commanders, (Captains)	6	6
Regimental Adjutant	1	1
Paymaster and Quartermaster	1	1
Arms officers	1	1
Regimental Judge Advocate	1	1
Subalterns	23	23
Total officers	36	36
Senior Surgeon	1	1
Junior Surgeon	1	1
Veterinary Surgeon	1	1
Accountant	1	1
Captain	1	1
Total classed officials	5	5

NON-COMMISSIONED OFFICERS AND MEN.		
(a.) Combatants—Mounted:		
Squadron Sergeant-Majors	6	6
Sergeants	66	66
Regimental Trumpeter	1	1
Trumpeters	18	18
Lance Corporals	48	48
Privates	720	720
Total mounted combatants	859	859
(a.) Combatants—Dismounted:		
Roughriders		2
Quartermaster-Sergeants, (1 for pay, 1 for quarters, 6 for squadrons)	8	8
Sergeants, (including 1 for transport)	7	7
Privates	46	133
Total dismounted	61	150
Total combatants	920	1,009
(b.) Volunteers		18
(c.) Non-Combatants:		
Regimental Clerk	1	1
Other Clerks	4	9
Various Employes, Hospital and Veterinary Departments	13	21
Sacristan	1	1
Armorer and Assistants	2	3
Farriers, Regimental and Squadron	1	7
Saddlery Department		7
Cutter and Fitter		1
Tailors		6
Total Non-Combatants	22	56
Regimental Transport Drivers	48	6
Grand total non-combatants	70	62
Total N. C. Officers and Men, (including Volunteers)	990	1,071

HORSES.

Officers and Troop	940	893
Transport Horses	85	12
Total	1,025	905

In the guards the regimental commander is a major-general; in the line, a colonel.

Of the 133 dismounted privates there are:

6 Shoeingsmith's pupils,
6 Trumpeter pupils,
18 Permanent Orderlies,
6 Orderly-room Messengers,
24 Officers' Grooms,
7 Cooks,
14 Bakers,
25 Officers' Servants.

When mobilized, sixty of these go to fill up the ranks; the cooks and bakers become transport drivers, and the rest remain as servants in the officers' families.

A cavalry brigade consists of two regiments. A division, the greatest tactical unit, consists of two brigades and two horse-batteries.

STRENGTH OF A CAVALRY DIVISION OF THE LINE.

	Officers.	*Officials.*	*Non-Commissioned Officers and men.*		*Horses.*		*Guns.*	*Ammunition Wagons.*	*Other Carriages.*		
			Combatants.	*Non-Combatants.*	*Combatants.*	*Transport.*			*1 H.*	*2 H.*	*4 H.*
Divisional staff	4	1	.....	12	....	13	.....	.....	.....	6	.....
Two brigade staffs	4	.....	.....	2	.....	.....	.....	.....	.....	.....	.....
Three dragoon regiments	108	15	2,577	393	2,820	255	.....	.....	33	87	6
One Don Cossack regi'nt	25	3	889	83	917	86	.....	.....	10	20	2
One-half sotnia of Cossacks	1	.....	64	.....	65	.....	.....	.....	.....	.....	.....
Two horse batteries	10	3	358	61	455	42	12	24	2	8	10
SUPPLY AND TRANSPORT.											
Staff and general divi'on	3	3	.....	65	.....	86	.....	.....	2	21	.....
Supply division.	1	1	.....	70	.....	113	.....	.....	.....	48	.....
Total	156	26	3,888	686	4,257	595	12	24	47	190	18

DEPOT CAVALRY.

The measures recently adopted by virtue of the decree of the 23d of August, 1883, have substituted for the depot squadron, which formerly corresponded to a regiment, a depot cadre corresponding to a division and comprising three or four sections; two cadres, that is to say six or eight sections, constitute a brigade.

These cadres are charged, in peace, with the training of remounts for their cavalry regiments; in war, in addition, with the formation of depot squadrons, from which the losses in the field are made good.

Each brigade of cadres has a staff of one major-general, one adjutant, two clerks, one armorer. In peace the cadre consists of ten officers, two classed officials, 249 combatant rank and file and thirty-five non-combatant rank and file; horses, 297.

In mobilization each section receives from each regiment two staff captains, (one already with the cadre), two roughriders, the combatant non-commissioned officers and men left behind by the regiment, two clerks, five dresser-pupils, one saddler, one armorer and one cutter.

They are sent at once to the depot with all their papers, etc. Each section then proceeds, on the arrival of the reserve men and the horses obtained by the conscription, to form two depot squadrons of twenty files to the section, retaining 135 combatant and forty-five non-combatant non-commissioned officers and men to form a third squadron, if required, to hasten the making of uniforms, etc.

Each depot squadron will have five officers, 180 combatants, (men), eleven non combatants, 213 horses.

	Officers.	*Non-Com. Officers and Men.*		*Horses.*
		Com.	*Non-Com.*	
Strength of section in peace.....	2	83	14	99
Received from regiments on mobilization...	2	2(?)	10	.. ..
Total.	4	85	24	99
There are required—				
To form two depot squadrons.....	10	360	22	416
To form the third squadron.....	5(?)	135	45	0
Total.	15	495	67	416
Required, therefore, from reserve of each regiment	11	410	43	317

ARMS.

Sword.—Is curved, three feet four inches long, and weighs two pounds eleven ounces. The scabbard is of wood covered with leather. The gurad is made in one piece.

Rifle.—The Berdan dragoon rifle is carried by all combatants (except sergeant-majors, trumpeters, and transport-sergeants,) in a case slung over the back, muzzle upwards, with butt behind right hip. It is secured at the shoulder and waist. It fires the same cartridge as the infantry rifle, and differs from it only in length of barrel, being 4 ft. long. Its weight is 7 lbs. 6 oz. It is sighted up to 1,200 paces.

Bayonet.—All men armed with rifles carry the bayonet in a scabbard, fastened to the sword scabbard. With bayonet fixed the carbine is $5\frac{1}{2}$ ft. long.

Revolver.—A Smith and Wesson, is carried in a case on the waist-belt by sergeant-majors, trumpeters and dismounted combatants, on all occasions, by transport-sergeants and all non-combatants, in war only.

Lances.—The lance is now used only for parade purposes.

To show how these soldiers use these arms on foot, I will give an extract from the "War correspondence of the *Daily News:*"

"Suddenly is heard the quick, steady tramp of armed men on foot, marching across the bridge. Whence came they? No infantry followed our column of dragoons. But there is the gleam of bayonets! Surely infantry men must have come up somehow. Listen narrowly a second and the ear detects through the duller sound of the footfall the jingle of spurs. The Russian dragoons are dragoons proper in the original signification of the term, and as, when occasion might offer, they would show that they are heavy cavalrymen of the right stamp, now they were to show that they could act as infantrymen as well as the best foot soldier who ever tramped. The outside men of threes in the first squadron had dismounted, giving their horses to the centre men. They had drawn their short rifles from their leather sheaths slung over their backs, and had taken their bayonets from the sheaths fastened to the sword scabbard. Their officers carry rifles like the men, all save the captain; and a fine, upstanding, stalwart set of fellows they look, fit to go anywhere and do anything."

This was written before the conversion of all cavalry into dragoons; but what this particular regiment did then, can now be done by any regiment in the service.

QUALIFICATIONS OF RECRUITS.

The minimum height is 5 ft. $4\frac{3}{4}$ in.; the maximum 5 ft. 10 in. They must be of a build suitable for horsemen; and short legged, bow legged or knock-kneed men are not to be taken.

UNIFORMS.

The uniform, which is serviceable, calls for no special comment, except that many of the cavalry have white leather guantlets for parade

SADDLE.

The saddle is simple in its construction and consists of two wooden bars connected by two iron arches. Its simplicity makes it very economical. It is eminently practical because it can be fitted to any horse by means of a felt pad of varying thickness. Sore withers and backs are extremely rare. It is also very easy to repair.

The seat, which is stretched between the arches, and the flaps, are of leather. The stirrup leathers pass through D rings fastened to the bars. All saddlery is left the natural color of the leather. No cruppers or surcingles are used. Two wallets are strapped on the front part of the saddle, and two saddle-bags to the rear part of the numnah, a felt-lined leather pad which goes between the blanket and the saddle. The bit is hooked to the end of the bridle head so that it can be easily detached.

SADDLE-PACKING FOR FIELD SERVICE.

In front of the saddle are the corn sack with its ends pushed into the wallets, the great coat on top of the sack, and the piece of tent on top of great coat. Every other man carries a canvas water bucket, folded up and placed inside great coat. This seems to be a very poor place for it, if it is to be used on the march.

In the saddle-bags he carries:

On off side.— A forage rope, 1 clothes brush, 1 grease brush, 1 harness brush, 1 shirt, 1 pair drawers, 1 pair ankle boots, 1 towel; and in a pocket, 2 horse shoes, 16 nails, 1 chrry comb.

On near side.— A hay net, a bag with $1\frac{1}{2}$ rations biscuits, 1 cholera belt, 1 pair earlaps, 1 bandage, bag containing $9\frac{3}{5}$–12 oz. of groats, bag with $1\frac{1}{5}$ oz. salt, bag with tea and sugar. (The last three bags are rolled up in a spare piece of cloth for repair of tunic.) Bag with spare parts for carbine, and cleaning materials, rolled up in a piece of cloth for repair of breeches, 1 towel, 1 piece of soap, housewife and comb, rolled up in a piece of linen for repairs, pair baggage straps, nose bag; and in a pocket, 1 horse brush. His blanket, in a case, is in the rear of the saddle, and is shoved into a copper cooking pot, which fits exactly over one end.

RATIONS.

For a soldier in time of war:

Biscuit, 1 lb. 13 oz., (or flour or bread equivalent.)
Fresh meat, $7\frac{1}{4}$ oz., or $3\frac{5}{8}$ oz. ham.
Groats, $4\frac{4}{5}$ oz.; tea, $\frac{9}{40}$ oz.; sugar, $\frac{9}{20}$ oz.
Salt, $\frac{4}{5}$ oz.; spirits, .27 pint.

Pepper ($\frac{3}{80}$ oz.) and vinegar (.18 pint) may be issued by the commander-in-chief, who also orders the issue of spirits and meat, these not being included in the daily ration. The Greek church requires abstinence from meat on fast days, and, as there are 169 of the latter, the soldier gets meat on 196 days—not quite ninety pounds a year!

HORSES.

From the horse census of 1882 it appears that there were 19,674,723 horses in European Russia, of which over 70 per cent. were fit for work. In addition there were in the hands of the Cossacks, in the same limits, 1,252,316 of all ages.

Horses are obtained for the army in time of peace by purchase, and on mobilization by requisitioning.

Remounts for the line cavalry are purchased by officers specially detailed. The purchase price varies from 185 to 207 rubles—that is, from $148 to $165. The above sums cover all expenses of purchase and keep of the horse until he arrives at the unit for which he is destined. No special color is laid down for each regiment, but horses are assigned to squadrons according to color. The horses must be from 14 hands 2 inches to 15 hands 1 inch in height, with a margin of one inch for exceptionally well-shaped animals. They must be from three to six years of age.

After purchase (evidently conditional) the horses are united at the depot cadre corresponding to the regiment, where they are inspected by a board and improper ones rejected. In 1885, out of 9,667 furnished by the remount officers, 1,031 were rejected. The horses remain one year at the depots, and are there broken to service. All remounts join their corps between September 15th and October 15th; that is, about the time of the arrival of the new levies.

REQUISITIONING FOR HORSES ON MOBILIZATION.

The Minister of War determines from the horse census the number of horses a district is to furnish, fixes the price to be paid per horse and appoints certain places where horses are to be bought. The evident desire on the part of the Russian government is to get the horses without friction, ill-will or injustice. To this end, owners parting voluntarily with their horses receive 20 per cent. additional on the price fixed by law, and free two horses, besides, in the class to which the one taken belongs. Owners concealing, or failing to produce, their horses are liable to a fine amounting to double the price of the horse, or, if unable to pay, they are liable to imprisonment.

INSPECTION AND CONDEMNATION OF HORSES.

Horses are examined annually by a board consisting of regimental, brigade and division commanders. The period of service for a horse is ten years, hence 10 per cent. are condemned. All that have served twelve years are first thrown out, then those that are unsound, then the oldest until 10 per cent. have been ejected. The after-history of a condemned horse is the same as in our service.

STABLE MANAGEMENT.

Horses must have from fifty-six to seventy inches of standing room in stables. Stalls must be at least nine feet four inches long, with a gangway in rear two feet four inches wide. Stable orderlies are present in stables at all times. The Russians have three stables a day. The first is at 5 or 6 A. M., depending on the season; the second at noon, after drill,

and the third at 6 P. M. The oats are divided into three equal feeds. One or two pounds of hay are given at each of the first two stables, the rest at evening stables. Horses are shod at least once every six weeks. In winter horses are exercised for an hour in blankets. Once a week through the winter and spring months route marches are made, regardless of the condition of the roads, by bodies varying in size from a section to a regiment. These marches, which are six or ten miles in length, are made at a pace of two-thirds of a mile at a walk and one and one-third miles at a trot, finishing up with two miles at a trot and two-thirds of a mile at a walk.

FORAGE RATION.

Forage is issued every ten or fifteen days. The peace ration for line cavalry is as follows: Oats, 9 lbs. 5½ oz.; hay, 9 lbs. 1 oz.; straw, 3 lbs. 10 oz. One month of grazing is given all cavalry horses per year, and this is in lieu of all rations. If necessary hay may be substituted for oats, at the rate of 4 lbs. 8½ oz., hay for 3 lbs. 1⅘ oz. oats. In time of war the ration is 12 lbs. 15½ oz. oats and 13 lbs 9½ oz. hay.

MARCHES.

The rates for marching cavalry is:

At a walk 3⅓ miles per hour;
At a trot 7⅔ miles per hour;
At a trot and a walk alternating, 4⅔ miles per hour.

A day's march is from 20 to 26 miles, the time occupied being from 3½ to 8 hours. Under favorable conditions small bodies of cavalry are considered capable of marching 46 miles in a day.

ENTRENCHING TOOLS.

As has been already stated, the cavalry is taught to throw up temporary entrenchments. The government has carefully provided it with good and proper tools for this purpose, and with the simplest and easiest means of carrying them. In the first place, twenty light shovels and twenty axes are carried, in each squadron, on the saddles, in leather cases. (These are fitted with loops and may be carried on the waist-belt.)

The following tools and material are carried in a two-horse wagon in the regimental transport:

(A.) For destruction of railways and telegraphs, per two squadrons:

Various tools (crow bar, wrenches, auger, hammer, cold-chisel, &c., in cases.)
20 pyroxiline cartridges with fuses, primers, &c., in cases.
4 rope beckets for climbing telegraph poles.
70 ft. spun yarn for fixing cartridges.
70 ft. cord for tying telegraph wires.
70 ft. wire for entangling same.
Pack saddle and appurtenances for carrying the above.
Total weight 142¼ lbs. Total for regiment 426¾ lbs.

(B.) Tools for the construction of bridges and ferries:

Various (consisting of chisels, saws, hammers, &c.)
Weight per squadron 24 lbs.; per regiment 144 lbs.

(C.) Entrenching tools:

4 large steel spades.
4 large axes.
Total weight per squadron 32 lbs., 10 ozs.; per regiment 195¾ lbs.

(D.) Reserve of pyroxyline, fuses, &c., for whole regiment, 121 lbs.

Recapitulation of weights per regiment:

(a.) 426.75
(b.) 144.
(c.) 195.75
(d.) 121.

Total, 887.50 lbs.

Transport of a six squadron cavalry regiment. The following stores, &c., are carried in the regimental transport:

I. Squadron baggage, (per squadron):

1. Ammunition, 36 rounds per private.
2. Tinned rations, 144 lbs.
3. Camp equipage, (4 camp kettles, 1 bucket, 1 ladle, butcher's knife, meat fork, meat dish, and various other implements). Weight 122 lbs.
4. Officers' baggage, 2 tents. Weight 72 lbs.
5. Picket line and gear. Weight 277 lbs.
6. Implements for cutting grass. Weight 40 lbs.
7. 4 pairs panniers for use with pack saddles. Weight 36 lbs.
8. 6 pairs of bladders for swimming rivers. Weight 27 lbs.

The above are loaded into a one-horse cart for ammunition, and a two-horse wagon.

II. Regimental baggage.

(a.) Carried in the squadron wagons:

1. Supplies: Biscuit (½ day's) for 193 men.
2. Officers' baggage: 5 officers, 72 lbs.
3. Field forge, appurtenances and fuel, 265 lbs.

The above are carried in one two-horse wagon per squadron.

(b.) Carried in the regimental wagons, &c.:

1. Supplies: 2 day's rations for men of the squadron, 4 days for regimental staff, 4,916 lbs.
2. Camp equipage for men of regimental staff, 113 lbs.
3. Officers' baggage, (433½ for regimental commander, 90 for field officers, 72 for others. Classed officials' average 120 lbs., 1 tent for each field officer, and for every two other offiers of the staff).
4. Field forge, tools and appurtenances, 445 lbs.
5. Grass cutting implements, 40 lbs.

6. Wheelwrights' tools, 30 lbs.
7. Saddlers' tools and supplies, 88 lbs.
8. Armorers' tools and supplies, 66 lbs.
9. Horse shoes and nails, 2,650 lbs.
10. Panniers for pack saddle, 36 lbs.

The above stores are carried in twelve two-horse wagons and one one-horse cart for the regimental commander.

11. Treasure chest, 288 lbs.
12. Regimental books and records, 378 lbs.
13. Chaplain's stores, 108 lbs.

The above are carried on a two-horse wagon.

14. Medical stores.

Carried in two two-horse wagons.

15. Veterinary stores and instruments.

Carried in a one-horse cart.

16. Tools for entrenching, bridge building, &c., 887½ lbs.

Carried in a two-horse wagon per regiment.

17. Spare stores, spare parts of wagons, lanterns, shoes and nails for spare horses, picket pins and picket ropes for same, are distributed among the regimental wagons.

In other words, the regimental transport has a grand total of forty-two carriages, eighty-five horses and forty-two drivers.

The length of a cavalry division marching in one column, without an advance guard, with its artillery, exclusive of its train, is 7,370 paces. With its train, same formation, about 9,482 paces.

TACTICAL NOTES.

The squadron is drawn up in double rank, with one yard from head to croup, and is divided into four sections. At all times the section is sixteen files front, the rear rank in centre of section being left blank if necessary. The squadron has, therefore, a front of sixty-four files, and, with the guides on the flanks of sections, occupies a front of eighty-six yards. Its depth, including file closers, is fifteen yards.

FORMATION OF A SQUADRON IN LINE.

The sections are counted off by threes. The squadron leader in line is section-front distance in front of the centre of his squadron. The leaders of the right and left sections are one pace in front of the second file from the right or left respectively of their sections, and those of the two centre sections in front of the centre of their sections. Sergeants are placed on the flanks of each section, the remaining ones, in the line of file-closers, one yard in rear of the rear rank. The sergeant-major is the squadron file-closer, and is three yards in rear of the centre of the line of file closers Supernumerary officers are placed in front of sections, never in the line of file closers.

PRINCIPAL FORMATIONS OF A SQUADRON.

Are line, columns of sections at wheeling distance, and *échelons* for gaining ground to the front and flank by a quarter wheel of sections to that flank. A squadron can move to the front or to a flank in single file, in twos, threes or sixes The distance between squadrons in a regiment in line is section front. The regiment in line, therefore, has a front of 611 yards.

REGIMENTAL FORMATION.

A regiment generally works in line of squadron columns at deploying distance, but the interval may be reduced to seven yards. The column formations are: Column of squadrons at wheeling distance, quarter columns with seven yards between squadrons, or column of sections at wheeling distance.

GENERAL PRINCIPLES.

Cavalry is never to attack without a reserve. Cavalry must reform rapidly after a charge.

A force that has overthrown the enemy by a successful charge is not permitted to take part in the pursuit till it has reformed.

The charge is always made in line.

In retiring, in no case is the pace to be faster than a trot.

In acting against cavalry the front of the attacking force should be at least equal to the enemy's. In advancing the attacking force trots to within about 600 or 800 yards, then gallops for about 400 or 500 yards and charges when within 200 paces of the enemy.

Against infantry a rapid pace must be maintained throughout, in order to reduce casualties; hence, the gallop is commenced 1000 yards from the enemy. Large bodies of cavalry generally attack in *échelon* of squadrons, the reserve being kept in column. Another formation is double *échelon* of squadrons on the center, the attack being made by the center squadrons, and the flank squadrons in column of sections form a reserve on either flank. An unsuccessful charge against infantry is not to be repeated more than three times, on account of the increasing confidence of infantry and of the encumbered condition of the ground, caused by the fallen men and horses.

Charges on artillery are to be made when it is in motion, or when it is limbering or unlimbering. A battery may be charged in flank with impunity, even when in action, if the charge is made in open order. I imagine that after Russian cavalry has tried this once or twice, the enemy will defend the flanks of batteries with machine guns. Captured guns are to be turned against the enemy, and, for this purpose, fifteen men per squadron are taught gun drill. Extended order is to be used against skirmishers or scattered parties of cavalry or infantry.

The attack formation of a division is in three lines, two regiments forming the first line and one each the other two.

FIGHTING ON FOOT.

Nos. 1 and 3 dismount; No. 2 holds the horses. Bayonets are fixed at once. Every dismounted officer has a trumpeter with him. The only formations are half squadron column, line and open order. One section is kept mounted as a guard for the horses, so that only three-fourths or two-thirds of the squadron dismount; that is, exactly 50 per cent.

Every year an officer and a detachment of men are sent from each cavalry regiment to the camp of instruction of a sapper brigade to be trained as pioneers. The instruction is for two months.

Six pairs of bladders for use in swimming rivers are carried with each squadron. The men become very expert in this exercise. The Cossack regiment of the 4th Cavalry Division swam a stream 130 feet wide, ten feet deep and with a current of eighty-eight feet a minute, in twenty-seven minutes.

The men are trained in heliographing and telegraphy.

All these lessons are taught and practiced in summer camps of instruction, in which, in addition to participating in minor tactical exercises with the other arms, the cavalry practice manœuvres and marches, in which the problems to be solved are as nearly as possible similar to those they will meet with in actual warfare.

COSSACKS.

I do not propose to say anything about the Cossacks as such. One regiment of them is part of every line division. There are also Cossacks of the guard. They are to all intents and purposes regular troops.

Russian policy is to incorporate at once, all inhabitants of recently acquired territory into her system, and any absorption of Asiatic soil is speedily followed by the appearance of a body of irregular horse recruited from the inhabitants of this acquisition. After European resources have been exhausted, Russia has an almost limitless supply of men and horses, in the Nomadic tribes of Asia, ranging from the Caspian to China and from Persia and Afghanistan northward to the Arctic. Although a distance from Russian civilization and short service as soldiers will detract from the value of this irregular horse, still, taken as it is to-day, its usefulness is not to be despised.

Any cavalry Russia may bring into the field in the next European war, be they Cossacks or dragoons, will be to all intent and purposes "regular" and it is to such my remarks apply. The guards are merely a favored branch of mounted men, with better horses, smarter uniforms, increased pay and greater privileges.

Such then is Russia's cavalry. The changes made are radical, and of a nature to make old-fashioned cavalrymen of the continental schools hold up their hands in horror. Other nations persist in disregarding the achievements of the cavalry on both sides during the rebellion. When a European writer other than Russian, is forced by the stern logic of events to give some faint praise to our cavalry, he always couples to it the contemptuous addition, "but they never had to oppose good cavalry." The Russians are wiser and seem to think that the cavalry combats of our war were something more than the collisions of irregular horse. They believe that the methods of fighting then introduced, and shown in every subsequent war to be based on sound principles, are worth adopting and improving. They can give no stronger proof of their faith; for these same methods are the ones on which they depend for success in the war now impending.*

DISCUSSION.

FIRST LIEUT. GEORGE B. DAVIS, 5th Cavalry:—I have listened with great interest to Lieut. ELLIS' very clear and satisfactory account of the Russian cavalry. There are many respects in which our experience is similar to that of Russia. Both are to a great extent new countries; in both those phases of development that are peculiar to new countries, or to newly settled territories, are still in progress, and both have relations with nomadic races, making it necessary for each to employ not a small part of its standing military force in their control and police regulation. Russia, too, unlike other European powers, seems able to maintain a large mounted force on its peace establishment; and is thus enabled to apply, in practice, the rules deduced from our experience in the Civil War, as to the separate, strategic use of the cavalry arm. In the war now believed to be impending in Europe, not the least interesting of its developments, to the military student, will be the results obtained from such an employment of large masses of cavalry.

It is always interesting to watch the formal adoption of an American idea into European practice. It is subjected to so many precise refinements of detail; it is so carefully thought out, and each phase, or contingency, is followed so remorselessly to its logical conclusion, as to result, not infrequently, in missing the point of the whole thing. The case of the equipment of the cavalry division, which Lieut. ELLIS has explained so clearly, is an illustration of this. Every possible contingency seems to have been considered in the matter of outfit and equipment. There are tools and appliances *constructive*, and tools and appliances *destructive;* provision seems to be made for the annihilation, and subsequent reconstruction, of every tangible result of man's endeavors in the way of material civilization. Buildings, railways, canals, bridges, telegraph lines, aerial and submarine, everything, in short, has its appropriate tool or explosive. The result is to add, very materially, to the number of necessary vehicles, and so to the length of the train. I find, from a rough computation, that a division with its artillery and trains, will occupy nearly four miles of road. This makes a very long column. I find that the Russian division, in column of route, takes up about the same length of road as was required for a division of the cavalry corps of the Army of the Potomac; but is considerably less strong than the latter in fighting men, and so presumably less effective in a military sense. When we consider the detachments that are needed to protect led horses and trains, I think it will be found that one of our cavalry divisions was nearly twice as effective as one of the Russian divisions, fully equipped for the field.

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*Books consulted in this compilation:

The Armed Strength of Russia.
Daily News Correspondence of the War between Russia and Turkey.
Cavalry in Modern War.
Notes sur les Cavaleries étrangères.
Green's Army Life in Russia.
Journal of the United Service Institution.
Revue Militaire de l' étranger.
Blackwood's Magazine.
Dennison's History of Cavalry.

The destruction of railways, and the construction, or reconstruction of bridges, during the rebellion, were accomplished with the most meagre of equipments in the way of tools. The most effective examples of railway destruction were accomplished with but two elements—human strength and fire. Stretches of track of from a half to three-quarters of a mile in length, were overturned—not such a difficult thing to do as one would suppose, with the old fashioned chairs and fastenings that were used in the construction of the southern railways. The ties were piled up cob-house fashion, and fired; the rails were then laid on and bent by the heat. If time was available, the heated rails were bent around trees, or tied in hard knots—an unnecessary refinement of detail, since the bending alone rendered the rails unserviceable and made rerolling necessary.

In building bridges the ax was generally sufficient. An auger and a few spikes were regarded as luxuries bordering on effeminacy. Such bridges were, of course, only fit for the passage of infantry and light trains. If considerable amounts of artillery were to use the bridge, their battery wagons furnished everything that the most punctilious bridge builder could hope for. The building or rebuilding of railway bridges was done by a special corps, supplied with the proper tools and materials; and the merit of their work lay, not in doing the thing at all, but in doing it with unexampled rapidity. This corps was recruited from the bridge and track departments of existing railways, and was composed of men who had been doing practically the same thing in the employ of railway corporations. These gangs are still an essential feature of the administration of all American railways, and, I have no doubt will be found as safe a reliance in the future, as they have proved to be in the past.

FIRST LIEUT. FRED S. FOLTZ, 1st Cavalry:—I am particularly struck with the fact, brought out in Lieut. ELLIS' paper, that, although the Russian cavalry is armed with special reference to fighting on foot, yet it dismounts but half its strength.

One of the four sections of the squadron remains mounted to guard the horses, and every third man of the remaining three sections is a horse-holder.

Our system appears to be better than this in this particular, but we can do better still. We can supplement our system of holding horses by the Italian system of bunching them, and thus, in perhaps half of the occasions for fighting on foot, put every man on the fighting line.

In the Italian cavalry the horses of each platoon are tied short to an iron ring, in such a way that they form a compact, circular bunch; heads at the center and tails out.

These bunches are incapable of motion and do not even require watching, as the yielding nature of the point of attachment makes it almost impossible for a horse to break away while, if a horse is shot, the bunch is only anchored more securely. The iron ring used is about one foot in diameter and is braced by two cross-bars. I have experimented with this system and have found it thoroughly satisfactory.

For the iron ring I substituted a coiled lariat, and believe this to be an improvement, as it is stronger, lighter and dispenses with the carrying of a special equipment.

With sixteen horses in the bunch I found it impossible to stampede it, although I tried in every way to do so. There was no drifting worth mentioning, nor did any horse succeed in breaking away; half the animals were taken from the ring before the bunch could be driven off.

I did not pursue the experiment to ascertain the smallest number that could be securely bunched; this limit will, of course, be reached when—with horses tied short, noses together and shoulder to shoulder—the circumference of the circle is not more than half filled.

Twelve horses can, I think, be bunched perfectly, but I doubt whether we can securely bunch a smaller number than eight.

FIRST LIEUT. O. L. HEIN, 1st Cavalry:—It seems to me that there is a tendency in our service and of frequent occurrence, to confuse the terms mounted infantry and dragoons, terms in my opinion, by no means synonomous. The armament and employment of these two arms are entirely different. The mounted infantry are in no sense cavalry, they are only intended to fight on foot, their horses being provided to enable them to make long and more rapid movements than the ordinary infantry soldier could accomplish. Their arm is the infantry rifle, and their instruction in riding needs be of the most elementary character. The horse with them is simply a means of locomotion and not a weapon—whereas with the cavalryman, the horse is his first weapon. The modern dragoon first appeared in our Civil War, and his prototype can not only be seen in Russia, but everywhere abroad. Indeed the great bulk of the cavalry in the armies of all the great continental powers are virtually dragoons, for they are mostly armed with carbines and sabers—whereas the genuine mounted infantry can only be found in England, and is of recent date.

I think the gentleman is in error in his assertion that the tendency in Russia at the present time, "is to fashion all the cavalry on the model of mounted infantry (dragoons)," and I quote from Col. VON LÖBELL'S *Annual Report upon the Changes and Progress in Military Matters During 1886*, as follows:

"In Russia no efforts have been spared to increase the mobility and independence of the cavalry. The general expectation, that, with the conversion in 1882 of the hussars and lancers into dragoons, the Russian cavalry would resolve itself into mounted infantry has not been fulfilled. The special characteristics of cavalry have been jealously retained, and it is expressly laid down that its primary rôle is that of cavalry, though it is intended and trained to act dismounted on occasion. The object in view when the conversion was effected was to form of the cavalry a large and uniformly equipped body, that should be able to move promptly and independently across the frontier in the event of war, and by its action delay in every possible way the concentration of the enemy's troops."

In "*Notes sur les Cavaleries Etrangères 1885*," the armament of the Russian cavalry regiments is given as follows: "The cuirassier regiments (four in number,) front rank armed with revolvers, swords and lances, the rear rank with revolvers and swords; dragoons, (forty-eight regiments,) are armed with carbines, bayonets and swords; the non-commissioned officers and trumpeters with swords and revolvers; lancers, (two regiments,) front rank armed with lances, swords and revolvers, rear rank with carbines and swords; hussars, (twelve regiments,) are armed with carbines and swords."

From this it will be seen that of the fifty-six regular regiments, all are armed with sabers; forty-eight regiments with carbines, while only the four cuirassier regiments and the front rank of the two lancer regiments have revolvers.

The Don Cossack regiments are all armed with sabers, and Berdan carbines without bayonets; the front rank men have lances also.

The following quotation is from the Russian cavalry regulations, "*Notes sur les Cavaleries Etrangères of 1885:*"

"The main rôle of the dragoons is that of cavalry, they are only required to fight on foot in exceptional circumstances, to hold the ground temporarily until the infantry comes up, in defiles, crossings of rivers, attack of villages, etc. Whenever the ground is favorable, they must fight on horseback, whether opposed by infantry or cavalry."

If the idea is ever allowed to prevail in our country that the mounted arm of the future is mounted infantry, it seems to me the days of our cavalry are numbered.

FIRST LIEUT. E. SWIFT, 5th Cavalry:—I think Lieut. ELLIS is mistaken in saying (I quote from memory) that the Russian cavalryman relies but little on the revolver. There is very good authority for the statement that the Russian cavalry is largely armed with this weapon and that it is taught to depend, to a great extent, on its use. See the *Army and Navy Journal* of February 4, 1888, the *Journal of the Royal United Service Institution* for 1886, No. 136, and *The Modern American Pistol and Revolver*, page 129.

PROPOSED REVISION OF OUR SCHOOL OF THE SOLDIER MOUNTED.

By S. C. ROBERTSON,

Second Lieutenant, 1st Cavalry.

AT our last meeting it was resolved that this Association consider in sequence the needs of revision of the different portions of our cavalry tactics, formulate its individual or collective ideas concerning them, and submit the result to the Washington Board now engaged in the revision of our general tactics. This resolution of the Association would seem to be a wise one. It is in compliance with the request of the tactics board itself, which seeks information and suggestion from any and all quarters of the military service; and it cannot fail to possess value to the cavalry service if it succeeds in developing the views of the many cavalry officers of experience, from different regiments, who are present at this, our largest military post. The subject is certainly one meriting any effort that may contribute in even the smallest degree to the efficiency and improvement of the new tactics. None are more directly interested in these tactics than the younger officers of our cavalry service, for these tactics may be the law and gospel of their professional career for the next twenty years, and it must be to every officer of the arm a painful prospect to be bound for such a length of time by a code for which he can find neither reverence nor belief. Although not as prone to take up the pen to defend or advance their ideas on tactical points as the officers of foreign armies, and although often apparently indifferent to these subjects—an impression that would certainly be given, for instance, by their silence for fifteen years under the system imposed on us by the assimilated tactics of 1873—none are quicker than our own officers to detect the weak points of any code of instruction they may be required to follow, or more apt to treat a system in which they have no confidence, with indifference and contempt. The fatal results of such a feeling to any service are apparent from its effect in our own cavalry during recent years, and it is surely the desire, as it should be the aim, of every cavalryman interested in his arm to see the weak points eliminated from the tactics now being devised for our use.

In pursuance of this idea, and of the resolution of the Association to discuss the various schools in order, I shall submit to you this evening some ideas relating to the revision of our school of the soldier mounted. I do not intend here to go into all the *minutiæ* of commands and movements proposed for a revised system of instruction, but merely to offer a brief abstract of what, it is thought, might and should be done in this direction.

My conclusions are founded upon some personal experience with different schools of riding, and are, whatever may be their value, certainly not the result of *prejudice* in favor of any particular system.

With this preface, I will say that I consider the training of the soldier in the principles of the school we are considering as by far the most important portion of his military education. I wish however to record myself as distinctly opposed, whatever I may have thought as a younger man, to imposing upon our trooper the refinements of the *haute école* of riding as taught abroad; for the instruction of this school contemplates a cavalryman fighting with the saber and requiring a horse delicately balanced and thoroughly trained for the purpose of individual combat. My knowledge of the cavalry operations of our own great war and of the style of trooper developed by them, cannot allow me to believe the methods of such a school necessary or practicable for the recruit in American cavalry, or in any cavalry which, like it, has abandoned the groove of the old system still used in Europe. And yet I believe thorough instruction in *some* of the principles of horsemanship is to-day more necessary than ever. The leaders of the American cavalry between 1861 and 1865 formed it into an arm more active and destructive than any cavalry the modern world has known. Its history during the last three years of the war, was a history of incredible distances covered on its marches and raids. A column on such expeditions was often kept in the saddle almost without rest or sleep through several successive days and nights, meanwhile frequently meeting its foe in bloody encounters in which the troopers used their arms effectively both mounted and on foot. Speed, dash, and endurance were the factors which most frequently won success in such operation.

In future war in this country and in the course of time, we predict, in Europe also, this method of using cavalry will undoubtedly obtain to even a greater extent than in the war of 1861-1865, and the demand upon the future cavalryman will tax, as war has never taxed before, his own skill and endurance, as well as the endurance of his horse.

The question concerning our cavalry recruit then must be: "How shall we best fit him to meet this demand?" I would unhesitatingly answer: "First of all, by a training in horsemanship which shall give him the greatest ease and confidence in the saddle; which shall enable

him to make the longest rides with the least liability of bringing back a broken-down, or sore-backed horse; which shall teach him at need to use his weapons, whatever they may be, with safety and effect from the saddle, as well as on foot, which in short shall make him in his relation to his horse as much like the Indian or Cossack as training at the age of manhood *could* make him." A cavalryman thus formed is a cavalryman ardent, impetuous, self confident, and capable of getting the greatest effort possible out of the animal he rides. Such a soldier, no matter how he be armed and manœuvred, is far, *very* far removed, it seems to me, from the "mounted infantryman" we hear so much of—a man devoid of the *esprit* of the mounted branch, untrained in horsemanship, timid in his unaccustomed perch, the saddle, and fatal in his ability to use up the horseflesh which carries him from point to point. We are, however, probably all agreed, without the necessity of argument, that horsemanship should be the solid base on which the whole education of our recruit should rest, and that the tactics should impart it to the degree necessary to turn him out the efficient trooper outlined above.

Does the instruction contained in our present "School of the Soldier Mounted," suffice for this? All of us will probably answer "no." Let us first consider its defects and afterwards suggest the remedy.

Our first objection is its brevity, especially as far as equitation proper is concerned.

Out of 514 pages in our cavalry tactics the number devoted to the soldier mounted is but forty and much of this is consumed by instructions for folding the blanket, saddling, use of the carbine mounted, and so on. In other words, about a little less than one-thirteenth of our entire drill book is devoted to this most important of *all* the schools of training through which the recruit passes. It is significant to state that in these same *cavalry* tactics the "School of the Soldier *Dis*mounted" embraces sixty-six out of the 514 pages, or a little less than *one-eighth* of the whole.

In the old tactics of '41 the "School of the Soldier Mounted" comprised seventy one out of the 450 pages, or more than one-sixth of the whole.

In the present English tactics ninety-five out of 500 pages, or nearly one-fifth of the whole In the present French manual 102 out of 472, or more than one fifth of the whole.

The *movements* given in the few pages of our present tactics in the school we are discussing are, as far as either horse or man is concerned, limited to the following:

To mount in line with intervals, (horse unsaddled); to dismount in line with intervals, (horse unsaddled); to march; to halt; to march by flank from line with intervals; to march to the rear; to oblique; to change direction in column of files; to rein back; to mount in line, (horse un-

saddled); to march by flank from line; to form line to the right or left from column of files; to dismount in line, (horse unsaddled); to change hands in riding school; to trot; to pass from trot to walk; to pass from head to rear of column; to pass from rear to head of column; to increase or diminish rapidity of trot; to pass from halt to trot; to halt from trot; to mount, (horse saddled); to dismount, (horse saddled); to gallop; to pass from gallop to trot; to passage; to leap ditch or bar.

These are absolutely all. One thing I would call especial attention to, and that is that the first and fundamental step in the training of the trooper is entirely omitted, viz: the application of the principles relating to the use of the leg. The proper method of applying the leg is briefly explained, 'tis true, in paragraph 382, but this paragraph is followed by no movement in which these principles governing the use of the leg are practically taught the trooper. This use of the leg is the secret and foundation of any horesman's skill with his steed. It certainly cannot be learned by the "march by the flank," as explained by our tactics, nor by the "right (or left) about," for all of these are turns on a considerable arc of a circle requiring no delicate application of the legs, or "aids." In all other tactics this use of the leg is taught by two movements, and in our tactics of '41, seem to be considered an indispensable preliminary to all the other instruction of this school. These two movements are the "turning on the forehand" and "turning on the haunches."

In each of these movements the bridle hand, the left leg, the right leg, each has a distinct and separate part to play, and yet all three act in most perfect unison. The result is to teach the trooper, in the course of time, to *instinctively* apply these different forces, obtaining by the slightest or most delicate touch, after a few lessons, an instant pivotal movement around either the fore or hind feet. No other movement known so tends to the making of horse and rider parts of the same machine as this, and no other movement can supply its place in teaching the rider the effects of and relation between the leg and hand movement, or in giving to the horse an idea as to what is required of him by the application of either. Another practical result of this exercise about forehand or haunches, besides the lesson it gives to the hand and leg, is that it enables the rider, when it is thoroughly learned, to wheel his horse quickly on either pivot in a space no larger than a hat, thus accomplishing by this manœuvre alone one of the most valuable of all the movements of a military charger, should his rider use him in a mêlée with either pistol or saber. It is also a necessary movement for any pivot file, where the fixed pivot is used.

And yet this exercise, important as it is universally recognized to be to both rider and horse, is not deemed worthy of a place in our "School of the Soldier Mounted," but is relegated to a corner in a small lot of

heterogeneous matter in the back portion of our tactics. It seems to be mentioned there incidentally only, and is unaccompanied by any command for imparting it in the way of instruction.

The pruning of the old tactics by which our present school was evolved must surely have been done by very injudicious hands when such first principles are omitted. I, however, about a year ago, talked with one of the cavalry members of the '73 board on this subject, and it is but fair to the cavalry arm to say that this officer assured me that the voice of the cavalry officers of the board had very little to do with the formation of the new manual.

I will close my observations as to the brevity of our instruction in this school by remarking that at the Military Academy it is found entirely inadequate to the riding-hall training of cadets, and that it has been supplanted there by additional exercises introduced by various instructors in riding. Mounting and dismounting at various gaits, reaching for heads on the ground at the gallop, riding without reins, and various gymnastics mounted, are among the many important exercises supplied by such instruction, and none have, in my belief, proved more valuable to the graduate of the Academy school of riding. These exercises, though they for the most part come rather under the head of calisthenics mounted than of equitation proper, should surely have their place in the "School of the Soldier Mounted."

2. Next to the brevity of this school we shall briefly consider the correctness of the principles of the school as it now stands. Frankly, I am, after something of an acquaintance with foreign schools of riding, not an adverse critic of our own, save in some minor respects. In other words, I should say that the principles should stand as they are. We are certainly not trained to any knowledge of an accomplished cross-country seat, nor do we know from West Point, or the tactics, anything of the pleasures of the jockey style of riding (I don't mean simply the rising-at-the-trot, but the flat seat, short stirrup and low hands of the jockey as well). I think the experience of the cavalry officers here will bear me out in saying that our officers and men even ride with a longer stirrup than that prescribed by the tactics, which *does* allow four or five inches (to quote its exact language) between the crotch and saddle, the trooper standing erect in the stirrup. This length of stirrup, the position in which it is hung and the slope of our cantle, give the distinctive type to our style of riding. I should say that its main defect is that we ride *too much* the balance seat. Our stirrups being long and hung well to the rear, as they are on the majority of our saddles, and the cantles of the saddles being extremely vertical, out seat is not flat enough for the majority of men. The back of the trooper in this saddle is too often concave, and the line of his body from cap to stirrup too perpendicular, either for the greatest

ease or the greatest solidity of seat. In such a position we have the extreme of the balance seat. The position is graceful and erect, but to the practiced eye of an old cavalryman, or any experienced horseman, it does not look as much like business as a seat with a somewhat shorter stirrup—way down in the saddle, with the back almost bowed out rather than in.

These defects of the hanging-place of the stirrup and the slope of the cantle, tending to this exaggerated position, are being now remedied in the trees supplied by the Ordnance Department in the last year or two, the stirrup loop in them being placed farther to the front and the cantle being made flatter. These changes are very necessary if we wish to have a flatter seat, for no system of riding can be taught in a saddle whose construction is not in accord with the principles of that system.

I would say, then, that our military seat with these modifications as to length of stirrup, position of stirrup and slope of cantle, is a very excellent one—as good as any military one in the world. Cross-country riding and jockey riding are delightful accomplishments belonging to another school of riding. They concern the officer rather than the recruit, and being for amusement rather than military use, perhaps have no place in any such paper as this. As to a proper length of stirrup it seems to me that the language of the present English tactics is very good: "The foot should be kept in its place by the play of ankle and instep, the stirrup being under the ball of the foot. The instructor must remember, however, that though he shall follow the general rule in fitting the stirrups, a great deal depends on whether the rider has a thin flat leg, or the reverse; a man with a thick thigh requires slightly shorter stirrups, or, when the horse is in motion and the muscles are brought into play, he will not have a proper hold of the stirrup. The ride should be slowly trotted round the school or manège, and if a man is then seen to be well down in his saddle, with his leg in the proper position, with his heel down, and yet not to have a proper hold of his stirrup, the stirrup requires shortening." This rule would seem to give about the perfection of the length contemplated by our own system of riding and I should adopt it almost verbatim for our new tactics.

Before leaving this subject let me say a word on the English trot. This trot is condemned ignorantly by a great many people in this country, not so much on the very reasonable ground of ungracefulness as on the charge of its being an affectation—of being in reality more fatiguing than the close trot. To these critics it seems that some extra effort *must* be necessary to raise the body from the saddle at each alternate hoof-beat of the horse. Such people have never learned this trot, but have by a few trials only, convinced themselves of its impracticability. They should take up their stirrup leathers, about two holes at least, sit well down on a flat (preferably English) saddle and then spend a week or two in an

honest effort to learn it. They will then find that the extra effort required is only a seeming one and that having caught the motion they may take off their stirrups and still be propelled from the saddle by it. It will be found, when thus thoroughly learned, surprisingly easy, the pleasure of the motion increasing with the roughness of the trot. Whether this style of riding be easier to the animal, it has never yet been proven. The French entirely adopted it in 1876 and several other European cavalries have partially accepted it, the Germans, I believe, using it for field work.

But I would not be an advocate of this system for our own service. Its extreme unmilitary appearance and opposition to all traditions of military riding should, I think, condemn it in spite of its advantages to the rider. I have seen some thousands of French cavalry at the Paris reviews riding, each regiment, at squadron front at this trot. The absurd appearance of these troopers rising and falling out of time must certainly have been very damaging to any troops in the estimation of the public observing them.

Whether, though, it would not be a very good idea to instruct our troopers that they might be allowed in campaign, where long distances at the trot are contemplated, to slightly shorten the stirrup and lean forward to a very gentle rise in the saddle is another question. Practically many of us who have had to make such long distances at the trot, have found the comfort of changing to this style after some miles of the close trot.

Leaving the question of the seat, I would dwell on a few minor points in the school we are discussing as ones which might need revision.

TO MOUNT.

Paragraph 373, explaining how to mount, horse unsaddled, says, at the command: "Prepare to mount," "take two side steps to the right, sliding the hand along the left rein, etc." This would simply place the recruit twelve inches to the right, the side step being six inches. It should read: "Step two full paces to the right, etc." Same for horse saddled.

It has been suggested by an officer present and I have heard it argued elsewhere, that this paragraph ought also to contain provision for mounting on the off, as well as the near, side. The possible advantages to the trooper are obvious and I should so modify the paragraph.

POSITION OF SOLDIER MOUNTED.

Paragraph 374, prescribing position for soldier mounted, horse unsaddled, says: "buttocks bearing equally upon the horse's back and as far forward as possible." This paragraph is a pernicious one. It, to my own knowledge, has given many men a very erroneous idea of the object aimed at by it. They have interpreted it to mean that a man should actually sit as far forward as possible. This is by no means what is intended. The intention of the paragraph is that the trooper shall "find his seat," or in

other words, sit as flat as possible. In the explanations of the reasons for this position which follows, the object of the expression "buttocks as far forward as possible," is given to be: "That the thighs may readily clasp the horse." This can mean very little, as the buttocks being thrown forward, would tend in no especial way to this end. This explanation stands to-day in our tactics probably because it existed in the old French tactics from which our own were taken. The true and corrected explanation of this position is given in the present French manual which says that it is "in order that the buttocks may seek the bottom of the saddle" (the principles being the same whether the horse be saddled or unsaddled).

I would then substitute for this paragraph in our own tactics, as it now stands, the following:

"The buttocks bearing equally upon the horse's back, the seat being as flat as possible." In paragraph 420, pertaining to the position mounted, horse saddled, I would insert for what now appears, the following: "The buttocks bearing equally upon the saddle, as much of the trooper's back as possible being in the saddle."

TO LENGTHEN AND SHORTEN REINS.

Paragraphs 375 and 376 prescribe a long and complicated manner of lengthening and shortening reins.

The reins being in both hands the instructor commands: 1. Lengthen. 2. Left rein.

Paragraph 375 says: "At the second command bring the hands toward each other without turning them in, grasp the left rein with the thumb and forefinger of the right hand one inch from the left thumb, (two) half open the left hand and allow the left rein to slip until the thumbs touch; close the left hand and replace the hands."

Paragraph 376 prescribes a similar method for shortening reins.

I would suggest the doing away with both these paragraphs as unnecessary. The recruit can readily lengthen and shorten reins without prescribing a tactical method for doing it.

TO FILE OFF.

Paragraph 380 prescribes that the horses are returned to the stable or picket line by the command: "1. By the right file off; 2. March," at which it says, each recruit "leads his horse four yards to the front, etc." I would make this two yards instead of four As it is, recruits mounted in line very frequently confuse the movement "1. By file; 2. By the right flank; 3. March;" with this and take four yards instead of two, in moving to the right. It would seem that two yards to the front is enough distance in leading off and the confusion now caused by the two distances would thus be removed. At the suggestion of another officer I

would also recommend that this movement be performed by both flanks simultaneously, by the command: "1. By two right and left file off; 2. March."

Paragraph 382, in discussing the use of the reins, says: "In riding the hand should be kept steady and ought not to move with the body." I cannot conceive the raison d'être of this sentence. Surely every hand which is light *must* oscillate gently with the motion of the horse. A hand entirely motionless is inevitably awkward and stiff in appearance as well as fatiguing to the rider.

In the same paragraph, in discussing the use of the, leg I would prescribe that every impulse of the leg be given by applying gently the inner side of the calf or boot, the heel only very slightly, if at all, turned in for this purpose. Many recruits when told to give the horse the right or left leg turn the toe out and give the animal a sudden blow with either the back of the leg, or the spur itself. I would emphasize this point as one of great importance.

DISMOUNTING, HORSE SADDLED.

In paragraph 422, instruction for dismounting, horse saddled, I would prescribe that the command: "Prepare to dismount," the left foot should be withdrawn from the stirrup, leaving it inserted only to such a length as to be able to support the body as it is coming to the ground. Men frequently neglect to do this, and after reaching the ground use the left hand to disengage the foot, with obvious danger to themselves should the horse start forward at this moment with the foot in the stirrup.

There are points open to slight criticism in paragraph 428, explaining the principles of the gallop, and also in paragraph 431, relating to leaping, which I will not go into here.

3. The third objection which presents itself is the position of this school in the cavalry tactics and the separation of its different principles throughout the tactics. I would make the "School of the Soldier Mounted," as it is in the English manual, the first school to be learned by the recruit, and therefore give it the first place in our new tactics. The few principles of dismounted drill necessary to teach the recruit in order to fit him for roll calls, marching to and from stables, and the mounted drill ground, can be very easily taken from the "School of the Soldier Dismounted," following that of the soldier mounted. The result of the present relative positions of these two schools is that a recruit who joins, let us say, in the fall or winter, is in the spring put *first* through several weeks of foot drill and manual with the carbine, and if ordered into the field at the end of this time, as frequently happens in the west, finds himself entirely ignorant of the most important thing he really has had to learn to fit him for campaign, viz: how to ride. The result can be testified

to by many an unfortunate troop commander burdened with such recruits on their first campaign. This reversal of the present order of the schools, too, would produce in the recruit's mind the proper idea of the superior importance of his training as a mounted man to his training as an infantry man. There are few things in the present "School of the Soldier Dismounted" actually necessary to a cavalryman's education, assuming that he is not kept principally to help swell the battalion drills and dress parades of an infantry command. The existence of the present Manual of the Carbine, like the double rank, and many movements of the "School of the Battalion Dismounted," is all the result of the idea of assimulation and is of no direct value whatever to the cavalry soldier. If cavalry troops are to be trained in all the niceties of marching and manual necessary to enable them to appear day after day on parade, the rivals of their infantry brethren in skill in these essentially *dis*mounted duties—if the time and labor necessary to bring a cavalry command to such a degree of perfection for the purpose of mere empty show is considered better spent in this way than in the serious business of training it for the actual necessities of war—let the "School of the Soldier Dismounted," with its large preponderance of matter stand in its present *first* place in our cavalry tactics. If not, let it, purged of all the instruction not actually essential for a few garrison ceremonies (dress parades dismounted *not* among them,) or for fighting on a dismounted skirmish line, yield its place to the "School of the Soldier Mounted."

In accordance with what seems to be the unanimous sense of this Association, I would change the designation also of this school and call it "the school of the individual trooper."

What was meant just now by the separation of the principles of the school into different parts of the tactics, was that for convenience sake I would combine in the school of the soldier mounted, all exercises for the training of either the trooper mounted, or of the horse, it being difficult to separate the two.

There are two other points to which before leaving this subject, I would briefly allude.

Should our first mounted instruction be on stripped saddles, (viz: saddles without stirrups) or bare-backed?

Many of the continental services have abolished bare-backed riding. The English still retain it, and I should say that if our recruits were allowed the necessary time for instruction, the bare-back system would always prove an advisable preliminary; if he is to have but a week or two of such exercises, I should say that he should at once be put in saddles without stirrups.

The other point relates to the curb rein. I would recommend most strongly either the use of the snaffle with the curb, upon certain horses

whose mouths are found to require it, or else the general adoption of the double ringed curb bit with two reins. As an officer of the Association remarked at the last meeting, those people — good riders — who habitually use the curb alone are people who ride with a loose rein — a thing impossible for a trooper to do using his arms mounted or in the ranks at drill. We are the only civilized military horsemen in the world who thus use the curb alone, and our animals mouths, especially after some days of fast drill, show the result of it, as probably each of the troop commanders present can attest. I have now called attention to all of the features of our school of the soldier mounted, which in my own opinion would seem to need revision, considering, however, only that portion of the school relating to equitation proper.

The revision I have suggested is by no means a sweeping one. The main changes are:

First.— To enlarge the scope of instruction by the addition of certain exercises of direct value in mounted instruction.

Second.— To modify a few minor portions of the school as it now exists.

Third.— To give the school the first place in the new manual and to include within it all the principles relating to the training of the mounted trooper or management of the horse.

I would classify instruction in the new school something as follows:

First.— Description (with plates) of regulation bit and saddle kit.

Second.— Proper method of bitting, saddling and arranging equipment.

Third.— Elementary rules for training remount horses.

Fourth.— Equitation proper (including mounted gymnastics).

In regard to the first heading — description of kit — I will say that there is now no complete description of the regulation bit and saddle to be found without going through files of general orders several years old. It would probably be interesting to know how many officers or men in our cavalry can now accurately describe the equipment, how many sizes of bit and saddle there are, what the dimensions of the different sizes are, of what material each article is made, the nomenclature of the different parts, &c., &c. This would seem to be information very desirable for the cavalryman to know.

Information under the second heading — bitting, saddling and arrangement of equipment — is still more practical and important. I would include in this the proper manner of packing the saddle for the field, and prescribe the exact articles to be carried in each saddle-bag. I would also add the description contained in the tactics of 1841 for folding the over-

coat. These details are of the highest importance to the efficiency of our soldiers in the field, and the tactics — *not* general orders — would seem the proper place to find them.

The rules included under the third heading—for training the remount horse—would simply include the brief instruction necessary for the trooper to adapt to his use any green horse with which he may be forced to supply the loss of a trained animal in the field.

Under the fourth heading — equitation proper — I have included mounted gymnastics. I wuld refer to the excellent little manual of such gymnastics devised by Captains GODFREY and AUGUR, of our cavalry, as containing everything necessary to incorporate in this portion of the instruction.

To close, I will say that two things are necessary for the success of this, or any other system of instruction of the soldier mounted. The first is the presence of good riding tracks or halls in all our cavalry garrisons. That there should be no riding halls or riding sheds in any of our military garrisons except West Point, seems hard to understand. In every post, fall recruits, and men who have been deprived by field service of proper instruction during the months when out door drill was practicable, could be put in excellent shape for the saddle by riding hall exercises through the winter. In most of our western garrisons at present these months are necessarily idle ones, neither old soldier nor recruit being advanced a peg in mounted instruction during the interval. I need not refer to the many advantages to officers, men, and horses in the way of exercise, which would be afforded by such riding halls. They need not necessarily be very large or expensive, and considering their great value to the whole command, it would seem advisable that they should be the *first* structures erected at every large post at which cavalry may be stationed.

The second thing necessary for the success of this system is that it be enjoined on post commanders by an iron-clad rule — such as now obtains in the matter of target practice — that a certain portion of each spring be set aside for this individual instruction mounted, nothing but the imperative demands of field service being allowed to interfere with it. This rule should be imposed in the tactics itself. In the present French Code this individual instruction lasts about six months of the year. In our own this period of instruction rarely covers more than two or three weeks — a period absurdly inadequate for the purpose of making horsemen out of raw recruits. This tendency to abridge this school of individual instruction results from various causes; from the lack of interest, or expertness, of many troop commanders in the principles of equitation; from the fear that if too far prolonged, field service or some other accident will entirely deprive them of troop and battalion drill; and, from the

partiality which it must be said many post or battalion commanders of cavalry have for the showier movements of battalion drill. This latter is the school of drill, too, by which most of our inspectors guage the efficiency of our cavalry commands, and it is not unnatural that education of the soldier should be pushed and forced in order to make the necessary display in the annual inspections. This tendency should be sternly checked as the most fatal one in our whole cavalry instruction.

It should be prescribed in tactics that our recruit should have at least two months daily drill in the individual school mounted at all posts; and at posts where riding sheds may be erected in the future this should be supplemented by drill during the winter in these sheds.

Troop commanders and field officers would, if the proper facilities of tracks, sheds, and sufficient time, be guaranteed them, undoubtedly take as much interest in this school as they now do in the higher ones, and the younger officers and men soon learn to base their *esprit* and claim for superiority upon what must always be the ground work of any cavalryman's efficiency — fearless and skilful horsemanship.

PROFESSIONAL NOTES.

LONG DISTANCE RIDES.

A résumé of some remarkable rides, translated from the *Revue de Cavalerie*.

BY 1ST LIEUT. O. L. HEIN, 1ST CAVALRY.

These rides (übungsritte) for the purpose of training men and horses to cover long distances, and to test and increase their powers of endurance, have been *en vogue* for some time past in Germany, but have only quite recently been officially recognized.

In the early part of April, seven officers of the Bavarian Light Horse rode from Sarreguémines to Münich, 287 miles, in five days, making an average of six and one-quarter miles an hour.

The daily ride usually began at 6 A. M. and ended at 7 P. M., with a halt of from three to four hours at noon. The itinerary was as follows:

April 7th, Sarreguémines to Pirmasens, 40¾ miles.

April 8th, Pirmasens to Bruchsals, via Landau, 58½ miles.

April 9th, Bruchsal to Cannstadt, via Illingen, 42 miles.

April 10th, Cannstadt to Ulm, via Geislingen, 56 miles.

April 11th, Ulm to Augsburg via Zussmanhausen, 47¾ miles.

April 12th, Augsburg to Münich, 38½ miles.

The trot was the habitual gait, except when passing over very hard roads, through villages and up and down hill, when the walk was strictly adhered to.

The horses were allowed to drink moderately whenever the opportunity afforded, and six out of the seven had good appetites throughout the trip; the seventh, a thoroughbred English mare, refused her food the first two days out, but afterwards was no longer troubled in this respect.

The daily grain ration varied from fourteen to nineteen pounds. The horses were smoothshod, and in no instance required re-shoeing during the journey.

Both men and horses were weighed at the beginning and end of the trip, with the following result:

No. 1.—East Prussian horse, twelve years old, carrying 178 lbs., weighed 1199 lbs. at the beginning of the ride and 1111 lbs. at the end; loss, 88 lbs.

No. 2.—Bavarian horse, twelve years old, carrying 202¼ lbs., weighed 1012 lbs. at the beginning, and 946 lbs. at the end of the ride; loss, 66 lbs.

No. 3.—East Prussian horse, twelve years old, carrying 191 lbs., weighed 902 lbs. at the beginning and 836 lbs. at the end of the ride; loss, 66 lbs.

No. 4.—East Prussian horse, eight years old, carrying 211 lbs., weighed 1056 lbs. at the beginning of the ride and 990 lbs. at the end; loss, 66 lbs.

No. 5.—English thoroughbred mare, nine years old, carrying 165 lbs., weighed 935 lbs. at the beginning of the ride and 906¼ lbs. at the end; loss, 27¾ lbs.

No. 6.—East Prussian horse, nine years old, carrying 165 lbs., weighed 990 lbs. at the beginning of the ride and 963 lbs. at the end; loss, 27 lbs.

No. 7.—Prussian horse, eight years old, carrying 206 lbs., weighed 1001 lbs. at the beginning of the ride, and 996 lbs. at the end; loss, 5 lbs.

The average loss in weight of the officers was 4 lbs., and of the horses from 4 to 88 lbs. At the end of the ride both officers and horses were carefully inspected by officers of high rank, and were found to be in excellent condition.

A PRACTICE RIDE FROM THE HAVEL TO THE DANUBE.

This ride was made by twenty-four officers of the 3d (Ziethen) Hussars, under the direction of the regimental commander, Lt.-Col. Von Podbielski, and was intended to illustrate the strategic forced march of an independent Division of cavalry, covering the left flank of an army, marching from the Havel to the Danube.

Each officer used one mount only during this ride, and their orderlies and a farrier under charge of a non-commissioned officer, were sent ahead each day by rail, to the several halting places, to care for the horses upon their arrival.

The horses ridden by the officers were thoroughbreds, half-breeds, chargers from the Prussian remount service, and in some instances troop horses.

The time appointed for the ride to begin was June 18th, and Bitterfeld, northeast of Halle, the rendezvous; to which point the officers rode from Rathenow, their garrison, a distance of about eighty-four miles, in three days.

On June 18th at 9 A. M., the officers divided up into a number of separate parties, each with a special mission, left Bitterfeld and rode to Mersebourg. The distances covered varied from thirty-four and seven-eighths to fifty-three miles.

June 19th they rode as far as Naumburg, twenty-three and three-eighths miles, visiting the field of Rossbach en route, and on the summit of Janus Hill a conference was held on the battle of November 5th, 1757, a glorious day for the Prussian cavalry.

June 20th, (third day) they left Naumburg at 3 A. M., and rode to Rudolstadt. They were broken up into separate parties, and their itineraries varied from sixty-nine and one-half to seventy-five and three-quarter miles. On this day a visit was made to the battlefields of Iena, Auerstadt and Saalfeld, a historical conference being held at the last mentioned place.

June 21st, (fourth day). The party set out at 6 A. M., and did not reach Koburg, their halting place, until evening, some of the party arriving at 8 P. M., and the remainder at 10:30 P. M. They rode sixty-two miles, over a very broken country and through the Thuringian forest, and the day was intensely hot.

June 22d, (fifth day). The party made Bamberg. They were divided into three parties, and covered twenty-nine and three-eighths, thirty-one and five-eighths and thirty-five and seven-eighths miles, respectively.

June 23d, at 6 A. M. they proceeded to Nuremberg, their average march being thirty-seven miles.

June 24th, they rode to Weissenburg on the Rezat, thirty-one and five-eighths miles.

June 25th, they set out at 4 A. M., (divided into eight parties) and advanced to the Danube, sixty-two miles. They approached this river on a front extending from Marxheim to Donauwerth, and at the latter place a long halt was made. In the evening they proceeded to Nordlingen.

June 26th, they rode to Schwäbig-Gmünd, thirty-seven miles; June 27th to Ludigsburg, thirty-four miles; June 28th, to Heilbronn, twenty-five miles; June 29th, to Mergentheim, forty-three and a half miles; June 30th, to Wurzburg, thirty miles. This was the last stopping place, whence the officers proceeded to their station by rail.

They had ridden 559 miles in thirteen days, exclusive of the three days' march to Bitterfeld, their initial point of departure.

The longest day's march was seventy-five and three-fourth miles, the shortest twenty-three and three-eighths miles, and the daily average forty-two miles. The first seven days the average was fifty-four and three-eighths miles.

The intensely hot June weather made this ride exceedingly uncomfortable, but what chiefly fatigued the party was the loss of sleep, and other discomforts occasioned by numerous receptions and fêtes en route.

The horses used on this march had had no special preparatory training, and with but two exceptions, (one horse crippled and one foundered) made the journey without injury.

A DISTANCE RIDE FROM BRANDENBURG TO PARCHIN AND RETURN.

On July 21st, Lieut. VON PELET NARBONNE, 6th Cuirassiers, rode from Brandenburg to Parchin, a distance of ninety-three miles, in twelve hours, and on the following morning, at 6 o'clock, started back on the same horse, making the return trip in twelve hours.

RIDE FROM STADE TO BERLIN.

Lieutenant VON SEEBACH, Division Adjutant of the 9th Field Artillery regiment, rode from Stade to Berlin, 246.6 miles in four days, the daily average being 61.6 miles. First day, 68.3 miles; second day, 65.1 miles; third day, 60.2 miles; fourth day, 52.8 miles. The charger ridden was a thoroughbred English mare, six years old.

In connection with this subject, it may not be uninteresting to recall two very long rides made by detachments of U. S. Cavalry, during the years 1870 and 1880.

In 1870 a small detachment of three or four men, of H Troop, 1st Cavalry, started from Fort Harney, Oregon, with dispatches for the commanding officer of Fort Warner, Oregon, Col. E. OTIS, now 8th Cavalry, the distance being 140 measured miles, over a rough, broken country, with bad water and scarce at that, and bad road, about twenty miles of it being heavy sand, the actual time between the two posts being twenty-two hours, and actual time of travel eighteen and a half hours, or a little over seven and a half miles an hour, the horses being in excellent condition on their arrival at Warner. After one

day's rest the party returned, marching at the rate of fifty-five to sixty miles a day, both men and horses reaching Harney in good condition. This trip was made without any preparation whatever, of either man or horse.—*Army and Navy Journal.*

In January, 1880, Lieut. ROBERTSON, 1st Cavalry, with Sergt. LYNCH, Troop D, and Sergt. PRICE, Troop E, 1st Cavalry, left Fort Lapway at 10 o'clock at night in pursuit of a deserter from Troop "D," same regiment; arriving at Fort Walla Walla, W. T., next night at 9:30 o'clock. Distance traveled 102 measured miles. There was snow on the ground at the time, it being on some of the higher table lands as much as one foot deep. This, and the ice on the valley roads much retarded the rate of travel. The following was the itinerary:

Left Fort Lapway, Idaho, at 10 P. M., reached Flather's ranch at 2 A. M., thirty-one miles, (average about eight miles an hour); rested and fed, and took the road again at about 7 A. M., not halting again until Dayton, W. T., was reached at 1 P. M. Halting there one hour to feed, and then without halt to Walla Walla. This made about five miles an hour during the day. Started back next day, the sergeants' horses being in excellent condition. Lieut. ROBERTSON rode a horse that had once been foundered, and showed lameness on the return trip, which was accomplished in two days.

SADDLE UP.

BY W. P. HALL,
CAPTAIN 5TH CAVALRY, U. S. A.

The diversity of position which the saddle occupies upon the horse's back and the indifference upon this point by many experienced horsemen would lead us to believe that it was really a matter of small moment where it was placed. We believe it to be a matter of importance second to none in the management and care of horses.

"Place the saddle on the horse's back well forward on the withers," is, we believe, according to tactics.

The more we examine this position of the saddle, the more difficult it becomes to find a single good reason for so placing it. Certainly it requires no argument to prove that the front legs of a horse support more dead weight than the hind ones, when he is untrammelled by rider or harness, because they not only support the chest, but the entire weight of the head and neck, besides supporting their portion of the body.

By the term "dead weight" is meant the weight when the horse is perfectly quiet. We have all seen how beautifully the economy of nature has arranged for the horse to use his head and neck (while running loose) to diminish the effect of the weight upon the front legs. When galloping down hill it is particularly noticeable, that just as the front feet come to the ground, the head and neck drop quickly in order to remove the shock from these supports; but with a rider on his withers and that instrument of torture, the cavalry bit in his

mouth the front legs of our poor horses have little chance for relief in this quarter. To obtain this much needed relief to the front legs, is, we hold, the most urgent reason for placing the saddle much in rear of its tactical location.

We believe that 99 out of 100 cavalry horses become used up in the front legs before they do in the hind ones. The legs are capable of resisting successfully a certain amount of strain and if either is taxed beyond the limit of its capacity, it will be the first to give away.

The horse when subjected to the weight of the rider, saddle and equipments placed upon his back according to tactics, sustains at least two-thirds of the weight upon his front legs, which there is no reason to believe are superior to the hind ones in capacity to bear this kind of weight. The back bone of a horse is not unlike an arch with the feet, front and hind, for the abutments. This arch is to a certain extent a flexible one, but has one of the great characteristics of this mechanical device, that of best supporting weight, when applied equidistant from the abutments.

The center of the back is also the center of motion, that is there is less motion at this point, than at any other along the back, making this the preferable place for the burden, for the reason that the supports have less inertia to overcome from a load at this point, than they do from one at any other. For the same reason the rider is subjected to less jar from the motion of the horse, his comfort at this point is also materially added to by the flexible and springing motion of the back which is greater in the center than at any other place. Another very important point to be considered is that the liability of the horse to fall when moving rapidly over rough country, is greatly diminished by placing the saddle in the center of his back. A horse saddled according to rule must from necessity have the cincha very tight around his chest, which is the part of the body where a large capacity to expand is most essential when the animal is undergoing severe physical exertion. Men who follow the business of training boat's crews for races or boxers for the prize ring would be considered as fit inmates for "Bloomingdale" were they to advocate the idea of placing an inflexible band around the lungs of their pupils, when fitting them for work; in fact, it seems to be a well conceded fact that we are capable of greater physical powers with a belt around the waist; and the habit of "girding up the loins" as an adjunct to great physical effort, is so old that its origin is contemporary with the period when man first commenced his struggle for existence. If there is one characteristic necessary in the conformation of a good saddle horse, it is high sharp withers, and upon these (with our system of placing the saddle) are formed the most troublesome class of sores to which a saddle animal is subjected. It is not an uncommon thing to hear it said by inexperienced persons that such a horse is not fit for saddle purposes on account of his high withers; by properly placing the saddle, the injury to these can be made a thing of the past and the chances of any injury to the back be reduced to a minimum.

The correct position of the saddle is obtained by cinching it *very tightly* so that the chincha shall be *midway* between the *elbow* and *stifle joint*, when the horse is standing square with his legs under him. It is of great importance that the cincha be very tight, in order to reduce as much as possible the slipping of the saddle upon the back. In this place it is far enough to the rear to prevent the action of the lungs being interfered with, and the confor-

mation of a horse's belly at this place is such that when a saddle is properly put on it will hold better than in any other position.

Major FRANCIS DWYER of the hussars in the Imperial Austrian service advocates this position of the saddle and it might be added, that for twelve years we have saddled our horses exclusively in this way and find that it has not a single objection.

THE IMPORTANCE OF PROPER BITTING.

BY CAPT. C. C. C. CARR,
1ST CAVALRY.

The paper on saddling recently read before the association has suggested an equally or more important subject, that of proper bitting. I say more important, for, of what use is it to have a saddle made and adjusted so as to afford comfort and safety of seat to the rider and perfect freedom of motion to the horse, if the horse upon which it is placed be not only under control, but so manageable at all gaits, and under all circumstances that the will of the rider is conveyed to and enforced upon him without effort.

The subject of proper bitting is secondary in importance to no other with which the cavalryman has to deal in considering the question how to obtain not only the greatest amount of work from the animal upon which are based his hopes of success, but to obtain it in the most direct, effective and satisfactory manner.

Considering the large proportion which the cavalry in our army bears to the other arms, the constant field service it has been engaged in for the quarter of a century since the close of the war, the practical minds of our officers, the inventive genius so often displayed, and the improvements which have been brought about by this combination of qualities, it seems strange that with what is, in other respects, the lightest and best horse equipment ever devised for cavalry service, we should allow our best efforts towards the attainment of perfection in mounted service to be paralyzed by the employment of a bit like that now in use. I use the word allow advisedly, for I am satisfied that when our cavalry officers decide upon a bit which will answer their purpose better than the present one, furnished upon the recommendation of a board of officers, the Ordnance Department will endeavor to supply it.

If this subject of devising a proper bit for our horses has ever received the serious attention of any officer or class of officers who had prepared themselves for the investigation of the subject by a proper study of the question in all its phases, mechanical and anatomical, and with reference to the temperament and conformation of the average American cavalry horse, I am not aware of it.

In the June number of *The United Service Magazine*, 1885, Lieut. S. C. ROBERTSON, 1st Cavalry, published an article on the subject of "Bits and Bitting," which contained many valuable suggestions, but based rather upon the experiments of others than derived from his own experience. The bit, of which he has given an illustration, and which he recommends the adoption of,

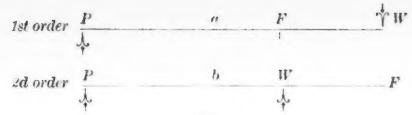

Fig. 9.

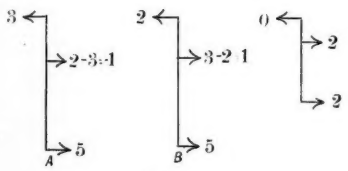

Fig. 10.

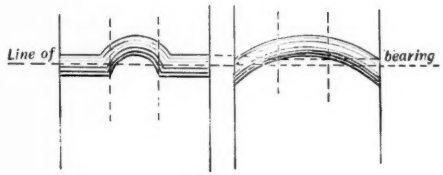

Fig. 11.

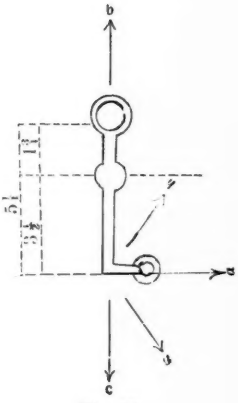

Fig. 13.

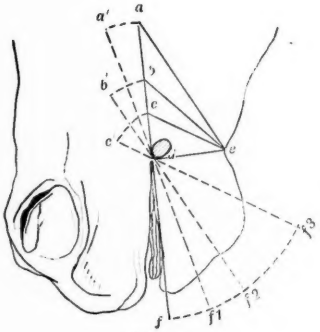

Fig. 12.

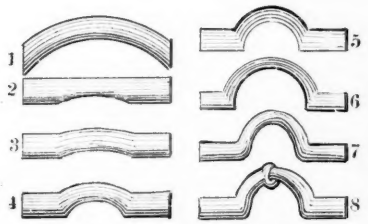

Fig. 14.— Various mouth-pieces.

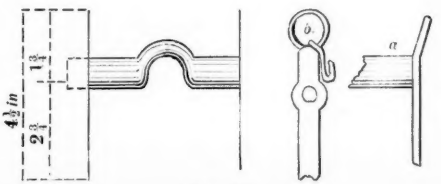

Fig. 15.

as possessing all the good features and none of the objectionable ones of bits heretofore used, would seem to be well worthy of a trial. It will be seen hereafter that this bit has almost precisely the proportions recommended by the authority, whose ideas it is the object of this paper to endorse and publish for the information of all concerned.

For an exhaustive treatise upon the subject of bits and bitting, written by a cavalry officer of great experience and brilliant mind, who has considered the matter from every possible point of view and availed himself of the results of the labors of other investigators in the same field, I wish to commend to the earnest consideration of our cavalry officers the work of the late Major FRANCIS DWYER, of the Austrian Hussars, entitled, "Seats and Saddles; Bits and Bitting."

To those who may read this work for the first time it will appear like a revelation, so startling and novel is the information furnished upon subjects with which most cavalry officers think themselves already well acquainted.

A careful study of this volume will, at least, have the beneficial effect of showing in what a slough of ignorance regarding one of the most essential things connected with our profession, we have been unconsciously wandering, and the knowledge may stimulate us to decide upon some course of action that will land us upon solid ground, from which we may hope to make continued progress in the future.

As it would be mere presumption on my part to attempt to enlarge upon the ideas, or improve upon the language in which they are expressed, I shall ask your permission to quote in its entirety the fourth chapter of Major DWYER'S work, in so far as it relates to the curb bit:

With a plain, smooth snaffle, there is no question of lever action; the amount of power applied to the reins is conveyed unaltered in quantity to the animal's mouth; to use a scientific expression, there is none of that mechanical advantage obtained which a mechanical power alone is capable of conferring.

A still greater amount, however, of mechanical advantage may be obtained by means of a lever—and a bit furnished with a curb of a proper length acts as such. There are, we know, several kinds of levers, and it will depend altogether on the manner in which the bit and curb are arranged, whether we obtain a lever-action that is favorable to us or quite the contrary; it is therefore necessary to say a word or two on the principles of lever-action.

In the first order of levers the power is applied at one end, the weight being placed at the other, and the fulcrum or prop between the two, dividing thus the lever into two arms, a longer and a shorter one. The mechanical advantage obtained is proportionate to the relative length of these two arms. Thus: if P F, fig. 9, (a) be equal twice W F, a power equal 1 applied at P will counterbalance a weight equal 2 applied at W; (see p. 162) but, as regards our purpose, it is more especially necessary to observe that the power and the weight move in *opposite* directions, or rotate round the fulcrum or prop, as is shown by the direction of the arrows. Applying this to a bit, the cheeks of which represent the lever, there can be no question as to where the power is applied, being the lower ring to which the rein is attached, nor as to the direction in which it is intended to act, being towards the rider's hand; and if a bit act as a lever of the first order, the fulcrum or prop must be represented by the bars* of the horse's mouth on which the mouth-piece acts, and the pressure of the curb† on the chin would necessarily represent the weight to be raised. But it has been shown that, in levers of the first order, the power and weight move in *opposite* directions in their rotation about the

*Gums.

†We use the word curb for curb-chain, and bit or curbed-bit for what is sometimes called curb.

prop; in this case, therefore, the horse's chin, in consequence of the pressure exercised by the curb, should move forward—that is to say, away from the rider's hand; and the greater the lever power of the bit, and the stronger the pull on the rein, so much the more would the horse be induced to stick out his nose—an occurrence that is by no means infrequent, and at which some riders and drivers are very much astonished.

Now, in fact, there is no *weight to be raised* in the purely mechanical sense of the expression—it is a question of the infliction of a certain amount of pain from which the horse shrinks and if the curb act more *painfully* than the mouth-piece, in consequence of its construction or position, we obtain the action of a lever of the first order, which we should never desire. Some people are indeed regardless of the amount of pain they inflict on a horse, and go on increasing this painful action in both directions, without, of course, obtaining any real advantage, which is percisely what we would desire to see put a stop to; and in order to do this let us examine into the action of another kind of lever.

In a lever of the second order the power and prop act, or are placed, at the opposite extremities of the lever, the weight being between the two; the mechanical advantage is proportioned to the relative distances of the power and weight from the prop. For instance, if P F, fig. 9 (b), be equal 3, and W F equal 1, these numbers will express the relative amount of power gained; and it is to be observed that the power and the weight move in the same direction in rotation round the fulcrum. This is what we want for bitting; the weight in this case is represented by the pressure on the bars of the mouth; the curb acting thus merely as a fulcrum, the horse's head follows immediately the pressure on the bar in the direction of the rider's hand.

It is very evident that the direction in which the bit acts depending altogether on the relative amount of painful pressure exercised by the bit and curb, the horse's head will follow the rider's hand, even though the curb lacerate his chin, if only a greater amount of torture be applied to the bars of his mouth, the poor animal being left to deduce from the balance of pain what the rider's will may be. This is the system of bitting employed by the Arabs and other Orientals at the present day; our Crusader forefathers borrowed it from theirs, and, strange to say, it is still more or less practiced among us.

It is, however, quite possible to economize for ourselves all this surplus ingenuity in devising instruments of torture, and to spare our horses the infliction of it, merely by adjusting our bits altogether on the principle of a lever of the second order—that is to say, by converting the curb into a simple prop or fulcrum for the lever-action on the bars of the mouth, which may be effected by rendering it perfectly painless, so that then the small amount of pressure exercised on the bars acting in the proper direction, and not being counteracted elsewhere, is the sum total of pain it becomes necessary to inflict, and even this may be reduced to a minimum. The above (fig. 10; see p. 164,) shows that, supposing a power equal to 5 to be applied to the reins, it may in consequence of various arrangements of the mouth-piece and curb, be made to exercise an amount of painful pressure as at A, where three parts act on the curb and only two on the mouth, which will make the horse bore into the hand; or as at B, where three parts act on the mouth and only two on the curb, so that 1 really remains available. Whereas, by reducing the painful action of the curb to O, as at C, we find that the whole amount of action may be applied to the mouth, and therefore itself reduced to two.

Here we have a key to the whole theory and practice of bitting, and there is no difficulty in understanding that its immediate consequence will be to render bits of small dimensions equally efficient and much more certain and reliable in their action than the monstrous pieces of ironmongery usually manufactured and sold ever can be; and now we proceed to enter into further details.

The first question that naturally presents itself is the absolute length of the lever—that is to say, of the upper and lower cheeks of the bit taken together; the next, that of their relative proportions to each other. Before

going into the consideration of these it will be well to clear up one or two preliminary matters, merely premising what is self-evident on inspection, namely, that a bit may be regarded as a pair of levers connected together by the mouth-piece. At first sight this might lead to the conclusion that the centre of the rivet on each side is always the point from which the length of the upper and lower part is to be measured. This is, however, only true for those forms of mouth-piece which consist of a port and two lateral straight portions; but if the whole mouth-piece forms one curve, the line of bearing—that is to say, the line connecting the two points of the mouth-piece which rest on the bars of the horse's mouth—does not coincide with the axis of the bit passing through the centre of the two rivets, which must be taken into account in estimating the relative lengths of the upper and lower cheeks of the bit. (See fig. 11; page 166.)

The measure for the length of the upper cheek of the bit, taken from the "line of bearing" to the point at which the curb-hook acts, is the height of the bars of the horse's mouth, which, as has been shown in a previous chapter, is pretty nearly a constant quantity—namely, $1\frac{8}{10}$ English inch, decreasing with very small horses and ponies to $1\frac{6}{10}$; therefore, rejecting *too* great nicety, we may say *that* $1\frac{3}{4}$ *inch* is the proper length for the upper cheek—very seldom less, and hardly ever more.

It would be very easy to demonstrate mathematically why these two dimensions should always correspond, but we prefer the simpler and more obvious way of showing what the consequences of a departure from this rule must necessarily be.

If one puts a bit into a horse's mouth *without attaching a curb to it*, when the reins are drawn the bit turns right round, and its cheeks or branches come to lie in the same line as the reins. There is no lever-action whatever, because there is no prop, and a snaffle or bridoon would, on account of their centre-joint, be much more efficient. The same thing, too, will happen, if the curb be *very* loose; the bit is then said to "fall through"—in fact, it is merely useless. The opposite fault to "falling through" is when the bit "stands stiff" without any play, the slightest pull on the reins causing the horse great pain, and, most probably, just in the wrong place—that is to say, externally; for this stiffness or rigidity of the bit is very often produced by a *tight* curb, and therefore the horse, instead of following the rider's hand, pokes against it. Good bitting will be equally removed from stiffness and falling through; it lies between these two extremes.

The length of the upper cheek of the bit will, however, *of itself* cause this instrument either to stand stiff or to fall through, if it exceed or come short of the height of the bars of the mouth, as is shown in figure 12, where d e represents this latter dimension, d b an upper cheek percisely equal, d c one of only half the same length, and d a one double the same. When a pull of the rein acts at f on the lower bar, the curb will be drawn closer to the chin, and the mouth-piece to the interior of that organ; and supposing the amount of this "closing up" to be equal in the three instances, the bit with a long upper cheek, d a, will assume the position of a^1 d f^1. It will be *stiff*, and the curb acting *upwards* in the direction of e a^1, will press on the sensitive part of the jaw (see p. 168). Moreover, there will be *no* lever-action, the two arms of the lever being equal; the horse will therefore bore in the rider's hand. On the other hand, the bit with the short upper cheek d c, equal half d e, will assume the position c^1 d, f^3—that is, it will *fall through*. The curb will no doubt remain in the chin groove, and act *forwards* in the direction e c^1, but forming a very acute angle with the branches of the bit itself, will have scarcely any value as a *prop*. The lever-action, however, will be very great, the lower branch f d being to the upper one d c in the proportion of four to one. In fact, it will be too great, and therefore reduces the prop to a nullity.

The intermediate upper cheek d b, equal d e, will assume the position b^1 d f^2, it will neither be stiff nor fall through: The curb will remain in the chin-groove, acting obliquely forwards in the line e b^1, and will afford a sufficient prop or support; and the lower branch of the lever, f d, being in the proportion of two to one to the upper one, d b, there will be sufficient lever-action.

It will be now easy to understand how it comes that people, in order to prevent a bit with a very short upper cheek falling through, are driven to using a very tight curb, the result of which is, that the whole action is transplanted from the interior of the mouth to the chin; as also that, in order to prevent one with a very long upper cheek standing stiff, they use a very loose curb which has the effect of making the bit fall through; and this — what is very common, nay, almost invariable in this country — immensely long bit is pulled up as high as it will go into the horse's mouth, and then a loose curb attached, which great piece of ironmongery of course not only falls through, but acts nearly altogether on the exterior of the horse's jaw; whereas a much smaller and lighter bit, if adapted to the mouth, would be much more efficient.

Some portion of the objection to the long upper cheek referred to above — namely, its affording no lever action — may be remedied by making the lower cheek proportionately longer; and this is precisely what the ironmongers do, and, moreover, are encouraged to do by ignorant buyers. As has been already shown above, with reference to fig. 10, we are thereby driven to use much severer — that is, more painful — bits than are really necessary; besides which, there is another reason why we cannot go beyond a certain length with the lower cheek. This is on account of the angle at which the rein acts on the latter.

We have already pointed out how much depends on the angle at which the power is applied to a lever, and that a right-angle is the most favorable one for this purpose, which may be shown in a manner perfectly independent of theory. If the bit, fig. 13, (see p. 170), were pulled in the direction of c, it would evidently have no other effect than to pull it downwards, and out of the horse's mouth, if the head-piece of the bridle did not prevent this taking place; and if the pull were made in the direction b, it would only lift the bit up till the angles of the mouth stopped it. In neither case would there be the slightest lever-action; and the nearer any other direction, g or h, approached these perfectly inoperative ones, b or c, the less would be its value; and it is therefore evident that the direction a, which is equally remote from both, must be most efficient — which is, however, precisely the right angle.

Now a very long lower cheek, or a very long carriage of the horse's head à la Baucher, or a very high pack in the front of the saddle, will always have the effect of bringing the rein to act on the bit at an unfavorable angle; and when we come to look at the bits that served as models for old equestrian statues, we find that the immense long lower cheeks of these were bent backwards so as to form an angle with the upper cheeks for the purpose of securing the action of the rein at a right-angle, or nearly so — which, however, did not and could not answer the purpose intended. If the inventors of these frightful bits had had any knowledge of the laws of mechanics, and the application of lever-power, they would have found that the same amount of useful action would have been much more certainly obtained by a much shorter lower cheek, without incurring the very serious disadvantage of lifting the bit, as it were, in the mouth, which always must have the effect of causing the curb to mount up out of the chin-groove, and therefore produce conflicting impressions, tending to neutralize one another and puzzle the horse. Moreover, the longer the lower cheek the greater will be the space through which the rider's hand has to move in order to produce a given amount of action. It will be therefore slower, although more powerful, and consequently more unequal, rendering it very difficult for the majority of riders to hit off exactly the precise amount of pull required.

Having thus arrived at the conclusion that the absolute length of the lower cheek should be diminished as much as possible, and also laid it down as a rule that a length of $1\frac{3}{4}$ inch is in all cases sufficient for that of the upper one, it is not difficult to ascertain what the relative proportions of the two should be, which would, of course, give us the absolute length of the former. And here we encounter the only useful general rule that bit-makers in general seem to be acquainted with, namely, that *the lower cheek should be twice as long as the upper one*, which, increasing the lever-action in the proportion of three to

one, should be under all circumstances ample. But the bit-makers, although adhering to this proportion, but too frequently make the lower cheek inordinately long, because they have no standard of length for the upper one; whereas, if we adhere to the rule laid down above of $1\frac{3}{4}$ inch for the latter dimension, we have $3\frac{1}{2}$ inches for the former one, both measured from the line of bearing (see fig. 11,) and $5\frac{1}{4}$ inches for the entire length of the bit measured from the point at which the curb-hook acts above to that where the lower ring acts below. (See fig. 13). This will be the maximum required, and will be found to suffice in all cases; with very small horses or large ponies the upper cheek will have to be reduced to $1\frac{1}{2}$ inch, the lower one to 3 inches, leaving the total equal to $4\frac{1}{2}$ inches, which will be about the minimum.

Some authorities, among them VON WEYROTHER, recommended the measured width of the mouth to be taken as a rule for the length of the lower cheek; this varies as we have already shown, from $3\frac{8}{10}$, $4\frac{3}{4}$ to $5\frac{1}{10}$ inches, and would be, therefore, somewhat more than the rule given above; but VON OEYNHAUSEN adheres to this latter, and we are convinced that he is perfectly justified in so doing, because we have it in our power, by means of the mouth-piece, to effect the nicest adjustment that can be desired, and there is a much better chance of having the proper proportions adhered to by the bit-makers if we give them *one* or *two* fixed quantities, instead of a number of variable ones.

Next to the dimensions of the cheeks of the bits, the most important point to be considered is the curb; or rather, the position of the bit in the horse's mouth, taken in conjunction with the line of the curb, is what determines in the first instance height of the upper cheek, and consequently that of the lower one. *The curb must lie in the curb-groove, without any tendency to mount up out of it on the sharp* bones of the lower jaw, otherwise, as we have seen, it ceases to be a painless fulcrum, and renders the best constructed bit uncertain, or even still worse, in its actions. (See fig. 11.)

The only certain way of obtaining this perfect painlessness of the curb, on which so much depends, is — supposing, of course, this latter to be properly constructed and of the requisite dimensions — *by placing the mouth-piece on that part of the bars exactly opposite to the chin groove;* it is only in this position that we have the right-angled-triangle, e, d, b, shown in figure 12. But there is another reason for this. We find here the portion of the bar of the horse's mouth best suited for the action of the mouth-piece — that space that intervenes between the grinders and the tusks, where these exist. With respect to the latter, it is necessary to mention that there is great irregularity as to their position in the mouth, some horses having them relatively higher, others lower; nor do the tusks of the upper jaw always correspond with those of the lower one, and mares have very frequently no tusks whatever; it is therefore quite impossible to determine the proper place for the mouth-piece with reference to these teeth, although even the cavalry regulations continue to do so. The chin groove, in consequence of its relation to the action of the curb, is the essential point to be considered.

Almost all the defects and absurdities of bits and bitting may be traced to ignorance of, or inattention to, this very simple rule. A man puts a bit in his horse's mouth — let us suppose that it is a well proportioned one in every respect; he fixes it at the prescribed "inch above the lower tusk" if he be a soldier, or draws it up into the angle of the lips if he be a civilian; he may just happen to hit off the right place, and if so even an ill-shaped bit will work tolerably; he is content with his work and thinks he has mastered the difficulty. But in ninety-nine cases out of a hundred the mouth-piece lies higher than it should, and if, in addition to this, the upper cheek of the bit be, as it so frequently is, a quarter of an inch too long, then the curb mounts up out of the chin-groove and causes so much pain that the horse, to escape it, bores into the rider's hand. He will then, perhaps, try a longer curb or a shorter one; the bit will either fall through or be stiff, and he concludes that

he must have a sharper one, and has recourse to some instrument of torture; and so it goes on from bad to worse till he gets rid of the poor ill-used animal.*

The best fitting bit, even when placed in the proper place, will not work well unless the curb be properly constructed and exactly of the length required. Taken, all-in-all, a double chain worked quite flat, without prominent edges, and which *when twisted up* to its full extent, *does not overtwist*, is the best kind of curb. Leather would be in some respects better than a chain; it is, however, not only perishable, but also subject to stretch or contract when exposed to moisture; and after having been once or twice thoroughly soaked, becoming hard and inflexible, it is more likely to injure the horse's chin than a well-made chain.

It is very clear that the narrower the chain is made the more likely it is to cause pain, which is just what we want to avoid, and we should therefore endeavor to make it as broad as possible. The vulgar notion of a sharp curb is, as the reader perceives, a monstrous absurdity. But there is a limit to this: if it be so broad as to fill up the chin-grove completely, there will be always a danger of its upper edge coming in contact with the sharp cheek-bones at every, even the slightest, pull on the reins, and getting up a sore which immediately interferes with the action of the bit; we must therefore select a curb that *does not altogether* fill up the groove. It is not easy to give any special dimension for the width of the curb-chain: eight-tenths of an inch will be found to answer the purpose very generally, but if we can use a broader curb without injuring the chin-groove so much the better; it is more likely to be flat and painless. Curbs are frequently made to taper off a little at the ends: there is no objection to this, except that, being more difficult to manufacture with precision they are seldom so well made as the curb that is equally broad throughout. Single-chain curbs made of flat links may be good, if not too broad or sharp-edged; the plain double-chain will be probably better made, and therefore preferable: the great thing is to avoid the infliction of pain, and if we are sometimes compelled to use a very narrow curb, on account of the chin-grove being sharp and narrow, it will be well to have a cloth case to run over it, which may be taken off after use each time.

It is not possible to give an exact dimension in inches for the length of the curb; a little reflection will show that it must always bear some special proportion to the width of the horse's mouth and the height of the bars, the latter of these quantities being nearly constant, whilst the former one is variable, as has been shown above. We must here anticipate, to a certain extent, the contents of the next paragraph. In order to render the action of the curb as painless as possible, it is absolutely necessary that it should press upon the greatest extent of surface that can be made available for the purpose, for which reason, of course, we require this instrument itself to be flat, and as broad as the chin-groove will allow. If the mouth-piece have exactly the same width as the mouth, the curb will wrap close around the chin, pressing equally over a large surface; but if, on the contrary, it be too wide, the curb will trend away right and left; and if the excess of width amount to half an inch or an inch, it will bear altogether on one spot and get up a sore,† although it is really larger than it should be.

It will be found that the proper length of the curb is about one-fourth more than the width of the mouth, the curb-hooks not being included in this; or, if we take these into account, the total of the curb and the two hooks will be once and a half the same dimensions.

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*This is no imaginary case: The author once saw a nice little thoroughbred horse at Ostend, and a few months later at Dublin, as second charger of a light cavalry officer of the garrison. It was set down as an incurable bolter, and passing through the hands of the riding master, adjutant and several officers, was finally sold, as dangerous to ride, for £15, at a fifth-rate auction mart. The purchaser, a ladies' doctor, brought it to the author, who, after curing its dreadfully lacerated mouth and jaws, bitted it properly with a very light bit, which enabled the doctor to ride it within a week at a review of the regiment in question and for several years afterwards, without ever bolting or being troublesome; never was there a better tempered creature.

†The author once found some thirty or forty horses in one squadron each with a little round ulcer on the chin in consequence of the bits being too wide.

The curb-hooks form an important item in the arrangement. It was formerly the custom to have one hook attached permanently at the near side of the bit, and another of a somewhat different form to the off side of the curb, but it has now become usual to attach a pair of hooks of exactly the same shape and dimensions, which is a great improvement; the proper length for these is three-fourths the height of the upper cheek, or about one and one-fourth inch.

The above length of curb applies to what is really employed between the two hooks, but it is usual to have one reserve link at the off side, and two of these at the near one, which latter are convenient, or rather indispensable, for catching a proper hold of the curb when being hooked on.

We now have gone step by step through the several details connected with the bit considered as a lever—namely, its cheeks, and the curb with its hooks, which represent the fulcrum or prop. There remains the mouth-piece, which is of equal, if not greater, importance, as a part of the instrument through which the immediate impression is made on the mouth, and therefore generally placed in the foreground by writers on this subject. It appeared, however, to us to be a matter of great importance to make it perfectly clear, in the first place, that the entire action of the bit should be concentrated on the mouth-piece, that the operation of the curb should be confined wholly to the function of a painless fulcrum, and that there are certain narrow limits to the size of the upper and lower bars which form the cheeks of the instrument. The form and proportions of the mouth-piece must be deduced wholly from the interior conformation of that part of the mouth on which it is intended to act, and these are, the tongue in the center and the bars of the mouth on each side. It has been already pointed out that the relative hardness or softness of the mouth, so far as this depends on the conformation of this organ itself is a consequence of the greater or less thickness of the tongue, and the greater or less sharpness and sensitiveness of the bars. The soft, fleshy tongue is, of course, much less sensitive to the pressure than the bony bars, covered only with a very thin membrane; and consequently, if we used a perfectly straight unjointed mouth-piece of a moderate thickness, this resting wholly on the animal's tongue would, notwithstanding a certain amount of lever-action, be the very lightest form of bit that could be well devised; in fact, a good snaffle would, on account of the joint, be more powerful. On the other hand, if by means of what is called a "port" we remove all pressure from the tongue and transfer it to the peculiarly sensitive bars, we obtain, with precisely the same amount of lever-action as before, a much greater amount of power—in fact, the sharpest form of bit that it is generally adviseable to use. Now between these two extremes there is a wide range, and the whole art of bitting consists, so far as the mouth-piece goes, in determining how much of the pressure shall fall on the tongue and how much on the bars, and we are thus enabled, by means of an almost infinite system of gradations, to obtain exactly the degree of action required in each particular instance by the nature of the service we demand, whatever the relative thickness of the tongue and sensitiveness of the bars may chance to be.

But there is one essential to be attended to—namely, that the portion of the mouth-piece destined to rest on the tongue and the bars respectively should keep their proper places, and this can be secured only *by making the mouth-piece of precisely the same width as the horse's mouth.* For it is very evident that if a mouth-piece furnished with a port be too wide, a very slight pull on one rein will suffice to displace it, so that the bar at that side gets either altogether under the port, in which case the whole pressure is thrown on the tongue; or partially so, when the corner of the port will, by being pressed into it, cause great pain—in fact, the action of the mouth-piece, whether with or without a port, becomes altogether irregular and cannot be depended on. On the other hand, if the mouth-piece be too narrow, the lips are jammed in over the bars, the mouth-piece rests more or less on them, and the whole action is disturbed, besides which the horse is sure, sooner or later, to get ulcerated lips

The first grand rule must be, therefore, in all cases to make the mouth-piece

*precisely so wide that, when placed in the mouth, it fits close to the outer surface of the lips without either pressing on these or being subject to be displaced laterally.**

But it is also evident that the different parts of the mouth-piece must be exactly fitted to the interior of the mouth; that is to say, that those portions destined to act on the bars of the lower jaw should come into contact with them, and with them alone and in the degree required; and that, on the other hand, that portion destined to act on the tongue should be of exactly the proper dimensions and form. Of course there is a great difference in this respect between smooth mouth-pieces and such as have a port; in fact, it is only as regards the latter that the dimensions are important. Where, then, a port exists, its *width* should be exactly that of the tongue channel, as otherwise it would either intrench on the space allotted to that portion of the mouth-piece required for the bars, and produce the inconveniences alluded to above; or, if narrowed, it would fail to answer the pupose for which it is intended: namely, to admit the tongue.† *The width of the port must be, therefore, exactly that of the tongue-channel*—and this is the second grand rule as regards the mouth-piece. Now it has been already shown that the width of the tongue-channel is very constantly three-fourths of the height of the bars, which, being equally constantly $1\frac{5}{10}$ inch, we have $1\frac{1}{8}$ inch for the maximum width of the port, even in cases when the total width of the mouth, and consequently of the mouth piece, amounts to $4\frac{3}{4}$ and $5\frac{1}{10}$ English inches; for pony and hack bits, about one inch will suffice; whereas the common practice of the bit-makers seems to be to make it one-third of the total width in all cases.

For the height of the port, of course, no rule can be given, this being precisely the most variable dimension of all, and depending altogether, so far as the interior conformation of the mouth is concerned, on the relative thickness of the tongue and sensitiveness of the bars; and further, as we have already shown, on the temperament and general conformation of the animal; finally, too, on the description of service to which it is to be applied; to which must, in some cases, be added the peculiar style of riding or driving of the individual that uses it; for nothing can be more certain than that the best bitting in the world is wholly useless, nay, sometimes dangerous, in bad, that is to say, heavy or rude hands.

Figure 14 (page 181) shows a succession of mouth-pieces of the forms now generally adopted, beginning with the lightest—that is to say, the one whose pressure is almost entirely exercised on the tongue—and proceeding onwards with an increase of port or "tongue freedom" to the very sharpest it is advisable or can ever be necessary to use, namely, to one in which the height of the port is equal to its width, say $1\frac{1}{8}$ inch; and beyond that it is impossible to go, because the slightest pull on the rein would, by altering the position of the lever, bring the top of the port to press against the palate, causing more or less pain, and therefore inducing the horse to bore with its head in the contrary direction to the pressure—that is, away from the rider's hand.

A mere inspection of these figures shows that the thickness of the iron or steel is an important item; the diameter of the straight portion of the mouth-piece may vary from a half to three-quarters of an inch; and as it is scarcely necessary to point out that the greater the diameter the less painful will be its action on the bars of the mouth. When under half an inch it pinches to a certain extent, and should therefore be only employed when one is quite certain that this is desirable. In figure 14 we have made the width of the port exactly $1\frac{1}{8}$ inch, and that of the whole mouth-piece being only four, which would be rather under the mark. The thickness of the mouth-pieces, Nos. 1, 2, 3, 4, is three-quarters of an inch, and these range from what is considered to be the very lightest form, No. 1, up to No. 4, which represents a medium bit. We, however, should always prefer No. 2 or No. 3 to No. 1, for the arched form of the latter throws nearly the whole pressure on the tongue, and the very small amount that falls on the bars of the mouth does so *laterally*,

*See note at foot of page 137.

†The Germans call the port of a bit the "tongue freedom"—Zungenfreiheit—which expresses exactly the purpose for which it is intended.

and not from front to rear. This form of mouth-piece, too, is always unsteady, and we have seen many horses whose tongues have been nearly cut through by its use with a tight curb. The mouth-pieces, Nos. 5, 6 and 7, are only half an inch thick, which renders their action on the bars of the mouth more telling; they represent sharp bits. It will not escape observation that a greater thickness of the mouth-piece adds, in fact, to the height of the port; it is like placing an arch on higher buttresses, but it renders the action on the bars less painful, and enables us to meet the exigencies of special cases, as, for instance, where a horse has a thick, fleshy tongue and very sensitive bars, and would not bear anything like sharp bitting.

There is another adjustment that may be occasionally employed with advantage, and which naturally finds its place here. The plane of the port is usually made to coincide with that of the whole bit; in other words, if we look at the instrument from either side, the port will be covered by the upper bars; but it is easy to perceive that, by inclining it a little forward, we may increase the tongue freedom without making the port itself higher; this, however, can only be resorted to with a port of very moderate height; otherwise the roof of the palate would be endangered by every pull on the rein.

We have hitherto treated the lower cheek of the bit as a straight line, and this is the form usually adopted in common life; whilst for military purposes various curves are adopted, the best and nicest looking being nearly in the shape of a capital "S." This variety of form, it should be understood, has nothing to do with the action of the bit as a lever; the point of attachment of the lower ring, the centre of the rivet of the mouth-piece, and that of the upper ring or eye, should be in one straight line, and at the same proportional distances from each other, in both cases alike. The real object of the double curve of the lower cheek of the military bit is to prevent the horse from catching hold of it with his lips, and then getting it between his teeth, a trick many horses acquire. With the straight cheek recourse is had to a curb strap in such cases, as every one knows; but it is much simpler and easier for military purposes to adopt the curved cheek, and there is no other reason beyond whim and fashion why civilians should not do the same.

As to the upper ring or eye into which the headstall of the bridle is fastened, this is now pretty nearly always really ringshaped. In former times it was usually flattened down in various degrees from an oval to a mere horizontal slit; but since the real principles of bitting have become better understood, the simple ring is preferred, and will be generally found to answer all purposes perfectly, although, no doubt, there are some cases where it might be convenient to use the oval-shaped eye; these are, however, very few indeed. We have also hitherto considered the right and left side-pieces (upper and lower cheeks taken together) of the bit as being in all cases parallel to each other, and consequently at right-angles to the mouth-piece. There are, however, many horses, especially underbred ones, whose heads will be found to project laterally, immediately above the angles of the mouth, in a sudden instead of the usual gradual manner; and the width of the mouth-piece is therefore insufficient to give the upper cheeks, especially the rings, the requisite degree of play, or rather, the latter will most probably gall the horse's cheeks more or less. There are two ways in which this may be readily avoided; first, by inclining the upper cheek somewhat outwards, (Fig. 15 a), or by making the upper ring movable (Fig. 15, b), instead of its forming a continuation of the upper cheek. Either of these methods will be found to answer the desired end, without interfering with the proper action of the bit, and are not only unobjectionable, but should be always resorted to when necessary, because nothing is more common than to see unthinking riders reject a bit whose mouth-piece has the proper dimensions, and adopt one that is a quarter or half an inch too wide, simply because they find that the upper bars do not fit *the outside* of the horse's head; in fact, this is what frequently leads to a wrong selection of bits. People think of the outside and visible part, and neglect altogether the much more important interior of the mouth and the mouth-piece.

It may be useful to summarize here the whole of what has been explained in detail in the preceding pages. We may say, then, that the average height

of the bar of the horse's mouth being one and three-fourth inch, the upper cheek of the bit need never be longer, except, perhaps, in very rare instances of horses eighteen hands high and upwards; and this gives us three and one-half inches for the lower one, and for both a total of five and one-fourth inches, measured from where the curb-hook rests in the upper ring to where the lower ring plays in its socket. For ponies or small hacks these dimensions must be reduced to one and one-half inch upper cheek, three inches lower one, and total length of bit four and one-half inches. These are the only fixed dimensions that can be safely given; the remaining equally important ones are variable, and must be ascertained by measurement in the way to be presently pointed out.

Let us now suppose that we have ascertained the exact width of the horse's mouth, and also the proper form of the mouth-piece; we then have the length of the curb without hooks equal *once and a quarter* the width of the horse's mouth, and the curb-hooks equal in length three-fourths upper cheek of bit, which will bring the total length of curb *and* hooks up to *once and a half* the same dimension; and it only remains to put the bit and bridle in their proper places.

We have already shown how much depends on the bit being placed accurately. A quarter or even an eighth of an inch higher or lower makes all the difference in the world. The head-stall or cheek-pieces of the bridle must therefore afford all the necessary facilities in the way of buckles and straps for this purpose. Military bridles and harness have nearly always two pairs of these—that is, one pair by means of which the bit is attached to the cheek-piece of the bridle by its upper rings, and a second in the cheek-pieces themselves, for the purpose of regulating their length; and both pairs may be employed to determine the height at which the bit is suspended in the horse's mouth. There is a great inconvenience and disadvantage in having a multiplicity of buckles, and many civilian bridles—if we may use the word—omit altogether the first-named pair, the cheek-pieces being then sewed directly into the upper rings of the bit.* This we hold to be a great mistake, because, first of all, the bit, supposing it to be of the proper size and shape, cannot be so easily fixed in its proper place; and, secondly, it is impossible to change it for one that does fit accurately, in the contrary case. In fact, this practice is evidently a consequence of want of clear views on the subject of bitting, and, on the other hand, a great obstacle to the attainment of the necessary accuracy. We hold the lower pair of buckles and straps to be indispensable. The upper pair of buckles might be more easily dispensed with if one single buckle were placed on top of the horse's head, between its ears; for by means of this the total length of the cheek-pieces may be regulated *generally*, and the *final* adjustment of the position of the bit accomplished by means of the buckles and straps which latter should be pierced with holes at intervals of half an inch.† Some people will, however, prefer the buckles in the cheek-pieces; and if so it will be necessary to see that they do not lie higher than the angle of the horse's eye, as they are otherwise likely to interfere with the position of the forehead band, which should, like every other part of the bridle, including the throat-band, fit loosely, and cause the least possible amount of discomfort to the horse consistent with the object to be attained.

We may now wind up this chapter with the rules for placing the bit in the horse's mouth. When the headstall has been adapted generally to the animal's head by means of the upper buckle or buckles, the next step will be to adjust the bit by means of the lower ones, so that the mouth-piece shall come to rest on the bars of the mouth *exactly* opposite the chin-groove, unless, indeed, some irregular disposition of the tusks should render this impossible, in which case it must be moved *only just so much higher* as is absolutely necessary to clear the obstacle. The curb may be then hooked in, first, of course, at the

*We are told that the gentlemen adopt the latter method and the farmers the former not having so many bridles, and changing their mouth-pieces more frequently.

†It may sometimes be necessary to let the bit down or take it up by a smaller quantity than the half-inch affords; in such cases intermediate holes may be made; but the fewer of these the better, as they weaken the strap.

off side, leaving *one* reserve link, and then at the near side, leaving *two* such, and taking care that it lies quite flat in the chin-groove, without any (even the slightest) tendency to *mount* upwards when the reins are drawn. The curb should never be quite tight; there should always be room for the first *and* second fingers of the right hand to pass flat between it and the chin; and by gently pulling the reins with the left hand whilst the two fingers of the right are in this position, it may be easy to ascertain whether any pinching action occurs, in which case there is sure to be something wrong.

As to the measure of the proper length of the curb, we have already stated it *generally;* but each individual case will require a separate adjustment, and if the links be either very large or very small, it will sometimes occur that the difference of one of these will make the curb either too tight or too loose; we must then, of course, try another curb. If the bit is rigid or stands stiff on the reins being drawn gently, the curb will be too short; and on the pressure being increased, the horse will almost certainly either turn his mouth askew to avoid the griping action of the mouth-piece, or rear back suddenly to escape it altogether; we therefore give him another link, and drawing the reins gently as before, we observe whether, after the lower bar has moved through an angle of about eight degrees—bring the mouth-piece just to meet, as it were, the interior of the mouth,—the horse *gives* his head gently and gradually in the direction of your hand as it increases the pressure, without either poking his nose or shrinking back. If this be the case you are all right; but if the lower bar moves through a much greater angle than the above—say fifteen to twenty degrees—before the horse yields perceptibly, then your curb will probably be too long.

We say probably, because you may, after shortening and lengthening the curb once or twice, find that the horse will avoid the bit in the first case or remain insensible to it in the second—in fact, you discover that the mouth-piece is unsuited; therefore, in adjusting the length of the curb, you must take care to avoid drawing your conclusions too hastily. When you come to a hitch of this kind, lift up the horse's upper lip gently with your left thumb so as to get a view of the interior of his mouth, whilst you draw the reins with the right hand so as to see how the mouth-piece lies, whether too much or too little of its pressure falls on the tongue—in fact, whether the mouth-piece is not in fault; but this requires some experience, and perhaps the help of an instrument, of which we shall have to speak in the next chapter.

To conclude, *lightness, accuracy, easy motion, a total absence of stiffness, constraint, or painful action, are the characteristics of good bitting; and if these be attained, ready obedience to the rider's hand and heel will be the result.*

Admitting the soundness of the views expressed in the foregoing, and I can see no reason for declining to do so, we are now prepared to show how the Shoemaker bit supplied to our cavalry fails to fulfil the conditions demanded in a suitable bit in the following respects:

First.—Its weight, which, being 17 ounces, is excessive and unnecessary for strength or power.

Second.—The proportions between the upper and lower branches. These are the same in *all* bits, and are, for the upper, 1.75 inches from middle of slot to center of mouth-piece, and for the lower 5.1 inches from center of mouth-piece to end of lower branch; that is, the lower branch is nearly three times, instead of twice, the length of the upper. A dangerous excess of leverage.

Third.—In its action, combined with the position of the curb-strap, it is virtually a lever of the first order, and all power applied tends to force the horse's head away from the rider instead of bringing it under control.

Fourth.—The width of the curb-strap safe—1¼ inches—being decidedly above the width of the average chin-groove, it must, at every pull on the reins,

rise above the chin-groove and exert a painful pressure on the sensitive bones of the lower jaw.

Fifth.— The slot in which the curb-strap is fastened being vertical and admitting of no play of the strap, has a tendency to keep the curb-strap almost at right angles to the branches of the bit when the latter hangs naturally, so that it cannot be made to drop into the chin-groove or embrace the jaw equally at all points. It is impossible to make it hang or lie so as to act upon the jaw in the proper direction or without pain. This fault is enormously increased, when, as frequently occurs, a horse is supplied with a bit from three-fourths of an inch to an inch too wide for his mouth. An examination of the horses at this post would show the existence of a number having the little ulcers or callosities on the chin, mentioned by Major DWYER, as the results of the improper action of the curb upon the jaw.

Sixth.—The mouth-pieces of all our bits have the same diameters and the same lengths, the former being .6 of an inch, the latter 4.75 inches, and horses with low, broad, fleshy gums, are subjected to precisely the same kind of pressure as those possessing exactly the opposite characteristics, and there is no possibility of remedying the defect. The only thing to be said in their favor is that they are all of the mild type, so far as the mouth-pieces are concerned. The excessive length of mouth-piece, in the case of many horses, allows a play from side to side of almost an inch, and the effect of this can be readily understood. Extra power, accidentally or intentionally applied to one rein, draws the mouth-piece to that side, the port is displaced, and the point where the arch or port rises from the mouth-piece, although smoothly finished, frequently presses the tongue with force enough to lacerate it, and, in some cases witnessed by myself, cut the tongue almost in two. The perfect mouth-piece is one having a thickness suited to the nature of the horse's gums, or bars, as DWYER calls them, a port which allows the tongue to move freely under it, while the sides of the mouth-piece rest equally and painlessly upon the parts of the jaw where the power is to be applied. For bits to have mouth-pieces all of one size is as absurd as to have the shoes of the horses or the garments of the different troopers all of the same size. To be of any service they must *fit* comfortably and correctly.

Seventh.— The port in Nos. 1 and 2 is not too high, speaking in general terms, but that in No. 3, 1½ inches, exceeds the limit that should be allowed. A port of that height can be made only to torture a horse and make him bolt, not bring him under control. Owing to the erroneous ideas that prevail in regard to the use of the curb bit, its severity or mildness has generally been considered entirely dependent upon the height of the port; the thickness or thinness of the mouth-piece not entering into the consideration. It is probable that for most of our horses the port of from one-half to one inch in height would be found suitable, provided the bit were correctly proportioned, and the curb-strap kept in its proper place. With the present bit and curb it is not an unusual thing to see a trooper riding a horse which, in order to get the required freedom for his tongue, pinched between the mouthpiece and the binding curb-strap, has thrown it over the mouth-piece only to be fretted until nearly frantic, but unable to get it back to its appropriate place because of the power applied by his rider who, unconscious of the pain he is producing, and actuated only by a laudable desire to get his horse's head down, increases the painful effect to the point of torture.

Within the last month I have had occasion to put curb-bits, for the first time, into the mouths of some twenty-five horses of my own troop. Every expedient known, or that could be devised, to make them fit properly and act with due effect without producing pain with its attendant annoyances, has been tried, but I regret to say that the attempt has not proved successful. Curb-straps have been lengthened by making additional holes, the bits have been placed higher or lower as circumstances seemed to demand, but nothing has yet been discovered that will prevent the curb-strap rising above the place where it should lie in order to produce the desired effect.

An examination of the cavalry troops at this post would show that so dangerous is this curb-strap when in its normal position that many of the troopers are obliged to remove the strap from the slot and either fasten it loosely around the bar which contains the slot, or on the rear part of the ring of the upper branch of the bit, so that some power may be applied to the reins without forcing the horse to bolt or rear and fall over backwards to escape from the pain inflicted upon him. These temporary expedients for averting trouble have the bad effect of making the bit at all times uncertain and unsteady as regards both horse and rider.

If the bar containing the slot for the curb-strap were widened so that the slot could be made longer and inclined from rear to front so as to give the curb-strap a downward and backward slope, the evils complained of might be remedied to a certain extent, but as this is only one of many equally grave objections, it would be better, I think, to make a bit of an entirely different pattern.

I have had three or four bits made according to Major DWYER's specifications and have tried them with the most gratifying results. So far as I am able to judge from the limited experience already had with them, I am of the opinion that the use of bits of the pattern suggested by him would work a surprising and gratifying reform in the handling of our horses under all the conditions of peace and war.

A bit of the kind suggested, if well made of good material, need not weigh more than twelve ounces, or less, while the Shoemaker weighs about seventeen and the old McClellan about twenty-five ounces. The lever and bit should be sufficiently heavy and strong to enable a rider to control any horse that can be governed by a bit or that is fit for the service. If a horse can be managed, or rather held in subjection, only by the application of torture continuously applied, he can be made more useful in some other sphere of life or laid to rest in the boneyard; the cavalry service is no place for him. It is hardly necessary to observe that with proper bits and skilful application of them, the horses now to be found in this category would rapidly disappear; the rearing, plunging, bolting and restiveness now displayed at almost every drill or ceremony where *all* the horses are present, might become a thing of the past, and the trooper, controlling his horse easily, with comfort to himself, the master of a steed proud to yield prompt and cheerful obedience to the slightest manifestation of his rider's will, because of its being exerted in a painless way, might indeed feel that fortune was his mistress and destiny his slave.

EXTRACTS.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA, No. 70.

Swimming of Rivers by Cavalry.

It is not possible for large bodies of cavalry soldiers fully dressed,* equipped and armed to swim across rivers. In these days, when so much is expected from cavalry in the way of distant reconnoissances and raids, it is necessary, in order that the troops of this arm should not be checked by any insignificant stream of water, that they should be practised in swimming their horses across rivers and transporting their clothing, arms and saddlery by boats, or by other means that can be improvised on the spot.

There are two methods for swimming horses across rivers; one is for each man to accompany and guide his own horse; the other is for a few men to guide the leading horses and for the remaining horses to follow by themselves in a drove. In both cases arrangements must be made on the spot for transferring all clothing, arms and saddlery (if the latter be not left on the horses) from one bank to the other without their getting wet.

It is necessary to select the most suitable places for entering and leaving the water. Banks and a muddy ground are bad; a shelving shore and a firm bottom are good. When possible local enquiries should be made regarding the existence of quicksands, but if this cannot be done an examination of the shallow parts of the river bed should be made by one or two selected men before any large number attempt the crossing.

The number of men to enter the water at one time must depend on the extent of suitable ground available for entering and leaving it. Until men and horses have been well trained in swimming together it is advisable, in order to avoid accidents, that the crossing should be carried out by half troops, and only under very favorable conditions by troops.

To guard against accidents a boat, if procurable, should be moored in the center of the stream and a few selected swimmers should be held in readiness to furnish any assistance required.

These men should be furnished with sharp knives in order to cut at once any reins, &c., that might get entangled.

The men to cross the river must undress, and, if ordered to do so, unsaddle their horses. The manner in which the clothing, &c., should be conveyed across the river will be explained hereafter. The bit should be removed, as the snaffle only must be used after the horse enters the water. The bridle must be carefully put on, so as to prevent the horse getting rid of it; the throat lash must not be too tight, and to prevent the reins from getting entangled it is advisable to fasten them to the mane.

The men enter the water naked on their bare-backed horses. The officers keep their proper places, and an interval of six yards is left between the front and rear ranks, and a distance of three yards between the horses. When the horse loses his footing and begins to swim, the rider must lighten his weight on the horse, and should do so by extending himself horizontally in the water, keeping a firm hold of the mane at the lower end near the withers and retaining the reins in his hand at the same time. In this position the soldier must swim with his legs and endeavour to get on the down stream side of the horse. He must press as little as possible on his horse, so that the animal may not have to support his weight, but simply to drag him along on the surface of the water. He must retain his hold on the mane and reins with one hand as above explained, and with the other should throw water in the horse's face should the horse endeavour to turn round towards the place from which he started, which not unfrequently happens. It is advisable for the soldier to get on the down stream side of the horse in order to guide him more conveniently and prevent him following the direction of the current. It also saves the soldier from being dragged under the horse by the force of the rushing water. On entering the river the horse should be guided slightly up stream, so as to prevent a too rapid start, and if he refuses to go on, is frightened and rears, then on no account should the reins be pulled or the horse shouted at; every effort should be made to encourage and tranquilise him by talking quietly to and making much of him.

*See in Count TOLSTOI's "War and Peace" an account of the disastrous attempt of a regiment of Polish Lancers to swim the Niemen.

It is a good plan to accustom the men to leave hold of the mane in order to seize the tail, which is necessary if the horse sinks very deeply in the water. It is also advisable to accustom them to leave their own horse occasionally, in order to seize hold of the mane or tail of a horse near them, under the supposition that their own is drowned. Whilst men and horses are learning to swim together, and until they acquire confidence, it will be as well to arrange for the best swimmers amongst the horses to lead, and for the best swimmers amongst the men to be placed down stream.

When sufficient boats or rafts for the conveyance of the men are available, the other method of swimming horses, namely in a drove, may be resorted to.

The bulk of the men, with the saddlery, are first taken across in boats or on rafts. Then the horses which have been left with the snaffle bit only should be driven in a herd into the river. Some good swimmers on horses which also swim well should lead, and it will be found that the horses will enter the water and swim more willingly when free than when they are accompanied by their riders. As the animals land on the further bank they are taken charge of by the soldiers and resaddled.

The construction of rafts for the conveyance of the men's clothing and the saddlery is only necessary when boats of sufficient capacity are not available. In the construction of rafts, an officer's ingenuity will be brought into play. The common village charpoys form a good superstructure, which can be supported on small dug-outs, or earthen ghurrahs, the mouths being covered with any common cloth to prevent water being splashed in, on mussacks, or on kerosine tins, which in some villages in India and Burma will be found in large numbers.

If it be impossible to obtain materials on the spot for the construction of a raft, then the river should be crossed in the following manner: Some good swimmers cross first of all to the opposite bank, one of them taking with him a coil of thin rope, the end of which is fastened to a tree or boulder before he starts. This rope is used to establish a means of communication between the two banks. The men then make their clothing, accoutrements and arms into as compact a bundle as possible, which they fasten on the head or high on the shoulders as best they can; they then enter the water one by one, drag themselves by their hands along the rope and swim at the same time with their feet. Good swimmers should be told off to accompany men who swim badly so as to guard against accidents. This manner of crossing takes a long time, but it may be hastened by stretching several cords across parallel to one another. After the men of the first troop or squadron (with the exception of those required to accompany the leading horses) have reunited on the further side, their horses, fully saddled, should be sent across in a herd in the manner already described. It is necessary that careful precautions be taken to fasten all straps, reins, &c., so as to prevent the horses impeding one another when swimming side by side. The girths should be slightly loosened, the stirrups slipped up on the leathers, the bits removed from the horses' mouths and the rein fastened to the mane. The men leading the herd should be furnished with sharp knives, and be ready to cut any straps or reins which get entangled, and thus save the horses from drowning.

It is to be noted that it is impossible to direct from the bank of a river the movement of the men swimming across it, for the noise of the water and the neighing of the horses prevents not only the words of command from being heard, but also the trumpet sounds.

When a body of cavalry has to cross a river every man, whether he can swim or not, must accompany it. Time is lost in taking the extra precautions necessary to ensure the safety of men who cannot swim, and it is, therefore, necessary that all cavalry soldiers should be good swimmers. From the numerous experiments in swimming which have been carried out by large bodies of cavalry, it has been conclusively shown that *with proper precautions* no accident to man or horse need be feared.

When a native cavalry regiment has to swim a river, it will be often necessary that its camel sowars should accompany it. It is, therefore, desirable that the camels should be practised in swimming, and in doing so that the following instructions be attended to.

A rope must be fastened securely to the camel's head. The camel is led into the water, and the end of the rope held on a strong firm raft or boat, which is rowed across the river. When out of his depth the camel sometimes begins to swim, but frequently lies on his side and allows himself to be towed across. Care must be taken that the camel's head be held well above the water, close to the boat; the rope used need not be a long one. The tendency with the camels is for the head to go under and the hindquarters to rise above the water; this can be counteracted by making their drivers sit astride on their rumps, which forces their hindquarters down and the heads up.

JOURNAL OF THE UNITED SERVICE INSTITUTION OF INDIA, No. 70, (MILITÄR WOCHENBLATT, 11 JAN., 1888).

Cavalry Manœuvres in the Odessa District, August, 1887. From the Russian Invalide, No. 244.

Object of the manœuvres:—Strategic instruction for the cavalry to conclude with an attack in mass on the enemy's flank and rear.

The troops taking part were the 7th and 8th Cavalry divisions with their horse artillery and the cadets of the Jelissawetgrade college. Total, forty-six squadrons (sotnias) and twenty-four guns.

The manœuvres lasted from the 7th to 12th of August, with one day for rest. They were conducted by Lieut.-Gen. ALLEN, Commander of the 7th Army Corps.

Telegram from the officer commanding the district to the commander.

"*The first half of the manœuvres is to be devoted to the protection of the strategic front and the discovery of the strength and line of operations of the enemy.*

When this had been carried out the attack on the enemy's rear and flank is to be proceeded with, but during these operations the strategic front is not to be unguarded. During the second half of the manœuvres the protection of the front will be carried out by a skeleton force, in order to allow of more troops joining in the actual attack.

As far as possible only advanced guard engagements are to take place.

In deciding the result of an encounter, the condition and freshness of the opposing forces will be especially considered."

COMPOSITION OF FORCES.

Eastern force.—Commander, Lieut.-Gen. BODISSKO. Strength, twenty-eight squadrons and twelve guns.

Western force.—Commander, Lieut.-Gen. BOROSDIN. Strength, eighteen squadrons and twelve guns; also (imaginary) sixteen battalions, four squadrons and thirty-two guns.

Idea.—The main body (imaginary troops) of the western force are occupied at Bender until the 10th of August, when they are to commence their march on Odessa. (This is practically a flank march, with left flank exposed). The cavalry of the western force are to protect the advance of the main body, and at the same time to push forward in the direction of the enemy to ascertain their strength and intentions.

The cavalry of the eastern force, whilst protecting the advance of their (imaginary) main body on Wosnessensk, are to attack the enemy's cavalry with the object of driving them back and obtaining information on the strength and position of their main body.

Operations.—On the 6th of August the main bodies of opposing cavalry were about 150 versts (100 miles) apart; the eastern force occupying Jekaterinowka and the western force Frendenfeld.

On the 7th and 8th the eastern force advanced to Mosstowoje, Liachowo and the western force remained stationary. The two forces had now got touch of each other.

The 9th, a rest day.

This concluded the first half of the manœuvres.

The idea for the second half was:—The eastern force to attack the left flank and rear of the enemy in as great strength as possible, at the same time protecting the advance of their (imaginary) main body. The western force to repulse the attack of a stronger force on its flank and rear.

For the above purposes the eastern force had twenty squadrons and ten guns available, and the western sixteen squadrons and ten guns.

The remainder of the respective forces were used as skeleton troop to protect the front.

Before the advance the following arrangements were carried out in the eastern force. All weak men and horses were told off to protect the front. Every man received a three days' ration of biscuit and groats, and about two pounds of cooked meat. A daily ration of oats was taken in the corn bag for the horses. Besides this, in the wagons with the troop, was two days meat and preserved vegetables, each wagon carrying two days' provisions for two squadrons. One change of linen only was taken and the second pair of boots and socks was left behind.

On the 10th and 11th of August the eastern force continued its march for the purpose of getting round the enemy's left flank, and the western force retired on its main body, which was now supposed to have made two marches towards Odessa.

On the 12th the eastern force continued its march, with the object of attacking the flank and rear of the enemy. The main body of the western force made another march in the direction of Odessa and their cavalry followed them with such rapidity that they lost touch of the enemy in the morning.

The operations were brought to a conclusion with the decision that the eastern force had failed in its endeavours to attack the flank and rear of the enemy within the prescribed time.

In the last three days of the manœuvres the eastern force covered 158 versts (105 miles); this advance was not made by roads but chiefly across a country whose nature was constantly changing.

In the eastern force one horse died, and fifty-one were unable to continue the advance. Sixteen per cent. were laid up.

In the western force one horse died, and eleven per cent. were laid up.

The total casualties of horses was about fourteen per cent. But it must be remembered that several horses were taken on this march which were shortly to be passed out of the ranks. This should reduce the above percentage by one-third.

JOURNAL OF THE ROYAL UNITED SERVICE INSTITUTION, No. 142.

*Regulations for Field Service in the German Army.**

The regulations hitherto in force relating to the special duties of the troops when on service, and their training in those duties during peace, date back to the year 1870. From the fact that it was not considered necessary to alter them during the long series of years that have since elapsed, it is evident that they were regarded as generally sound, and did not call for any radical alteration, such as was introduced into the fighting formations after the war of 1870–71. In certain points, however, modifications and additions have become necessary, and they are embodied in the new regulations, of which a portion was published last year as a provisional measure. The whole ground covered by the regulations in their complete form may be taken to include all the duties which troops in the field are called on to perform when halted or on the march, with the exception of the actual tactical formations for fighting purposes. And besides indicating the nature of these duties and the manner in which they are to be performed in the field, instructions are also given regarding the training in them of the troops during the annual peace manœuvres.

The regulations of 1887 are divided into two parts, of which the first treats exclusively of duties in the field, and the second consists of instructions for the autumn manœuvres. Under the former are included the Ordre de Bataille and distribution of the troops; the communication between those exercising command and the troops: reconnaissance; measures for protection of the troops; the march; quartering of the troops; baggage; supply; the sanitary service; the supply of ammunition; railways; telegraphs; and field gendarmerie.

The second part deals generally with the annual training of the troops in field duties by means of autumn manœuvres. This comprises the distribution of time available under varying circumstances to drill by regiments and brigades, and to the more extended manœuvres; the conduct of manœuvers of one force against another, and of a force against a marked enemy, with various other details relating to peace manœuvres.

In the present paper the first part only will be dealt with, and that only so far as to include the quartering of the troops. The further subjects comprised in that part, together with the whole of the second part, will be reserved for future notice.

The work as a whole is well worth studying in its every detail: but for the purposes of the present *précis* much that is of interest to those who would go closely into every particular of the regulations must be restricted to a brief notice. In this paper the foregoing remark applies especially to the portions which treat of the communication between those exercising command and the troops, and of their quartering in cantonments or bivouac. In these sections much has been omitted, not because the subjects in themselves are wanting in importance, but rather on account of their being treated in the regulations in too detailed a manner for reproduction in a brief notice.

The sections dealing with the measures to be taken by the troops for their protection, whether on the march or when halted, have on the other hand been reproduced at considerable length: and though by no means in every particular a literal translation, the more important paragraphs are so in substance.

In an introduction of some length the occasion is made use of to record the qualifications required from both officers and men in time of war, if they are to be in a position to look forward to success with any feeling of confidence. The necessity for devoting from the outset of the military career the most careful attention to instruction and practice, in every particular, is dwelt upon with an earnestness which must make every officer feel how important may be the bearing of details only too frequently regarded as trivial.

The position of the officer is summed up in a very brief definition: he is the instructor and leader in every branch of the soldier's duties. As regards his own instruction, it follows that a high standard is required. Besides the regular experience learnt in the ordinary course of his duties by means of the periodical military training and manœuvres, the theoretical study of his profession is encouraged by means of participation in Kriegs-spiel, lectures, winter essays, and the working out of practical schemes on the ground.

H. H.

COMMUNICATION BETWEEN THOSE IN COMMAND AND THE TROOPS.

Written orders should be the rule. Even if the order can be given verbally, as may be the case with assembled troops, long orders will be taken down to dictation. When it concerns only simple arrangements, or a single direction, an order may be given verbally. As a general rule, it should be borne in mind that an order must contain all the necessary information to allow of a subordinate carrying out what he has to do, without however containing further directions than are required for this purpose.

* "Felddienst-Ordnung," bom 23 Mai, 1887. Berlin.

In sending orders and reports in the field they should be reduced to writing whenever time and circumstances will allow. If to be delivered verbally, the bearer of it must repeat the substance of the order aloud before riding off. Important orders and reports should, if possible, be sent by officers.

In the case of particularly important ones, or if the communication is insecure, several orderlies may carry copies of the same order by different ways, or several may be sent in company.

When great distances have to be covered, and at night, it may be desirable to dispatch with the officer a party of infantry in carriages.

Frequently, and especially when the written paper is to be destroyed if the enemy are likely to seize it, it is prudent to make the bearer acquainted with its contents.

RECONNAISSANCE.

The duty of covering the front of its own army and gaining information regarding the enemy's position and movements is almost entirely undertaken by the cavalry. In a restricted sphere, the divisional cavalry provide for the security of the troops to which they are attached from surprise, especially on the flanks, when they are engaged. The duties of the cavalry when so employed are not restricted to simple observation alone. No possible sources of information are to be neglected; the inhabitants must be examined, prisoners taken when practicable for a similar purpose, newspapers, letters, and other available correspondence carefully investigated for any information that may prove useful.

Though, in order to attain its object, it may become necessary for the covering cavalry to engage the enemy, the main purpose to be kept in view by them is observation. For this purpose small bodies are best adapted, and officers' patrols, composed of subdivisions or squadrons under selected officers, are usually employed. This allows of small patrols belonging to the enemy being overpowered, and of orderlies being sent back with reports, as occasion requires. Where circumstances necessitate it, the bulk of the patrol will be left behind, concealed from the view of the enemy's advanced troops, while the officer, accompanied by one of the best mounted men, goes forward to reconnoitre.

Every independent cavalry leader, down to the squadron commander, and even the officers' patrols, is responsible that the touch obtained of the enemy is not lost.

MEASURES OF SECURITY.

General Considerations.—In the vicinity of the enemy every body of troops requires to be specially guarded. The portion of the troops told off to do this has for its object to protect the whole force from surprise, to afford sufficient time to enable the commander to issue his orders and to allow of their being carried out.

The division of the troops may be made in different ways; but it is based always on the same principle, that the larger bodies push forward smaller detachments of a strength depending on that of the whole body employed. Whereas a large force pushes forward several bodies of troops, one behind the other, becoming smaller as they approach the enemy, to protect it, a smaller force can restrict its measures of security to the smallest possible detachments, provided it is itself disposed as the protecting body of a greater force.

On the March.—Measures of security are required on the march, because being tied to the roads necessitates a great extension in depth, and consequently demands a certain time for deployment. The troops told off to cover the march have also the task of obviating slight disturbances, in order that the march of the whole column may not be interrupted unnecessarily. In the main of a good reconnaissance service is the first step to security; still its completion by means of immediate measures of protection must not be dispensed with. The main body of advancing troops has its march covered by its "advanced guard:" the main body of retiring troops by its "rear guard." The protection of the flanks is effected by "flank detachments."

THE ADVANCED GUARD.

Although cavalry divisions in front provide in some degree for the security of the troops following, and form in a more extended sense their advanced guards, still the separation from the main body of a special advanced guard must not be neglected. Its strength and disposition are dependent upon the nature of the ground and the strength of the force—in large bodies upon that of the advanced portion. It consists of about one-sixth to one-third of the infantry and sufficient cavalry. Artillery will be attached as required.

Pioneers will generally be attached to it, to remove the obstacles or perform any other technical work; if the construction of a bridge appears likely to be required, a bridge train is also attached to the advanced guard. If an engagement is foreseen, part of a sanitary detachment is also allotted to it.

The interval between the advanced guard and the main body is dependent upon the ground, its own intentions and strength, and the considerations regarding the enemy. On the one hand it must be sufficient to secure as far as possible the march of the main body from interruption, and on the other it must be no greater than to allow of the main body supporting the advanced guard at the proper time. In an advance having the offensive in view the distance can be restricted so as not to delay the deployment to the front.

The advanced guard is divided into the main body, the advanced body, and the advanced guard cavalry. How far under cover of the cavalry a special distribution of the advanced guard can be made, depends upon circumstances.

The main body comprises the bulk of the infantry of the advanced guard, and also the artillery, if this forms a part of it.

The advanced body consists of from one-fourth to one-third of the infantry of the advanced guard, the necessary cavalry and pioneers, preserving as far as possible units intact.

The cavalry attached to it furnishes the detached party or point, and provides the necessary patrols. The advanced body marches so far in advance of the main body that it can

secure for it in case of contact with the enemy the necessary time to form up, ordinarily a quarter to half a mile; with small advanced guards a sufficient distance to prevent the main body being surprised by effective rifle fire.

The point, if possible led by an officer, otherwise by a non-commissioned officer, with four to six men, moves at an average distance of from 300—400 paces in front of the advanced body. As a rule its leader, leaving one or two men on the road, utilizes the elevations in its vicinity to obtain an extended view, and makes up the distance again by increasing his pace. The men ride with their carbines on the hip, only in covered ground with them slung. In the dark or in thickly covered country the cavalry point can be reinforced or relieved by infantry. An infantry point consists of an officer with a section, so as to offer some resistance and be able to spread out and examine a greater breadth of ground without having to call upon the advanced body. The infantry point moves as a rule in a skirmishing line, two men being ordinarily placed midway from the advanced body as a communicating file.

Infantry marching alone forms its advanced guard in a similar manner. Cavalry divisions do so also, but their functions exclude any definite forms being adhered to, and the same applies to cavalry bodies marching alone.

Every measure taken by an advanced guard must aim at securing the steady and continuous march of the whole force from being unnecessarily interrupted. The essential thing is to protect the troops from unexpected serious attacks. Small bodies of the enemy are endangered by the leader of the advanced guard feeling that he has, during the advance, the main body of the force behind him and can act energetically.

FLANKING DETACHMENTS.

Where it is necessary to cover an extended front, especially on more than one road, so that the power of resistance of the advanced or rear guard cavalry is not sufficient, a flanking detachment is furnished from the main or advanced body, and disposed in the same manner as the latter. If this measure should not be found sufficient for the protection of the flank force—especially in flank marches—it will be advisable to send out a flank detachment from this force also. Its strength and composition are dependent upon the degree of the danger and on the ground.

In flank marches this protection is often provided for best by leaving the existing advanced or rear guard to form the flank detachment intact and furnishing a fresh advanced or rear guard from the main force.

Cavalry marching alone, or, in exceptional cases in the vicinity of the enemy, infantry alone, take similar steps for the protection of their flank.

THE REAR GUARD.

Whereas the advanced guard can reckon upon early support by the main force, the contrary is the case with the rear guard. The latter should consequently choose its ground for an action, and by occupying positions with obstacles in front, force the enemy to deployments which will gain time, or if possible to make *détours*. In case of extremity the rear guard must not shrink from a tenacious resistance, and its composition must be arranged beforehand with this in view. It must in consequence be much stronger than an advanced guard, particularly in artillery, as the employment of this arm alone allows of the enemy being forced to deploy at a distance. Horse artillery is particularly suited for this service.

The distribution of a rear guard is ruled by the nearness and the attitude of the enemy. If not forced by these considerations to march in fighting formation, the rear guard moves in column of march. Its distance from the main force is on an average greater than that of the advanced guard, so as to allow of any delays in the march. The formation on the march is in a main body, a rear body, and the rear guard cavalry, composed in the same manner as the equivalent portions of the advanced guard. In order to preserve touch of the enemy, the rear guard cavalry remains a sufficient distance back; and if the enemy pushes the retirement, it must specially watch any attempt to gain the flanks. Care must always be taken in forming a front to the enemy that too weak a force is not placed in the front line.

If time admits, preparations should be made to delay the enemy by means of blocking the roads, destroying bridges, and measures of a like nature. These works will be more thoroughly executed if the pioneers, or infantry detailed for the purpose, can be carried in wagons. Infantry or cavalry marching alone form their rear guard in a similar manner.

MIXED OUTPOSTS.

The first step towards obtaining security is by an active endeavour to gain intelligence of the enemy, and the nearer the enemy is, the greater becomes the necessity for this. If the necessary protection is not afforded by independent cavalry pushed forward, mixed outposts are the rule, the two arms taking their share of the duties in such a manner that the cavalry undertakes principally the reconnoitring and day duties, and the infantry principally those by night. Their strength depends upon the attitude of the enemy, the strength of the main force and the nature of the ground, and their disposition upon the length of time they are to be in position and the time available. A prolonged halt in face of the enemy necessitates a more perfected disposition, while troops that halt after a march, with the intention of moving off again in the morning, must be contented with the simplest measures. Whereas, therefore, fortress warfare demands a systematic division of the outposts, and especially a rigid advanced line, in the field the forms are elastic and are adapted to the changing circumstances.

By day and even more by night the movements of troops before and after an action are restricted to the roads. It follows that the roads should be occupied which lead towards the enemy. If these are seized, the enemy's more considerable movements cannot take place undetected; smaller ones off the roads may disturb the outposts, but they will not endanger the main force. Whereas, after the close of an action, the outposts will preferably be formed from

intact troops, after a march the advanced or rear guard undertakes the duty of covering the force and placing the outposts without further orders. As a rule the main body of the guard halts where it is, and the advance or rear body forms the outposts at the halt.

The advanced or rear guard consists for the period of the halt of the main body, with which is the commander, and of the outposts. If there are in front of the outpost line localities or points to be specially occupied for the protection of the whole, this can according to their respective positions be advantageously done from the main body. These detachments are then constituted as a portion of the outposts. If the posting of the outposts requires, on account of the vicinity of the enemy, to be covered, the advance or rear body may be temporarily halted, and the outposts thrown out from the main body covered by the former. Whereas this is an exception, on continuing the march it is an appropriate rule to leave the outposts in position and move the new advance body out under their cover.

The outposts are divided into a main body, the outpost companies, and the outpost cavalry. The main body forms, as a rule, near the main road and behind a defensible position, the first support of the advanced companies. These companies form the main protecting line, being placed as far as possible in ground offering facilities for a tenacious defence in case of attack. They protect themselves by pushing forward infantry pickets and non-commissioned posts at night, and if necessary in the daytime as well. According to the local circumstances the main body of the outposts may also send these out direct to its front or flank. The outpost cavalry is in the front line by day, taking over the duties of covering the force and having its first support in the companies. At night, a portion of it may remain with the advanced line.

It will only be advisable to attach artillery to the outposts under very exceptional circumstances. If so employed by day it goes back to the main body of the outposts at night.

Mounted orderlies will be attached at the rate of from four to six to the main body and to each company, and one or two to every infantry picket. The whole of the outposts are under the charge of the outpost commander, who is as a rule the commander of the advanced body.

When the conformation of the ground, readiness for action, or the extent of the front requires a division of the outpost line, two or if necessary more outpost sections may be formed adjoining one another. In this case each of these sections is allotted as far as possible to one battalion, or the portion of it belonging to the outposts, which then forms within the section its own main body and outpost companies, receives its own cavalry, and is under its special commander.

From the diversity of circumstances, of the object in view, and of the ground, *no instructions can be given for outposts which will meet all contingencies. In each individual case the distribution, orders and duties of the outposts must be regulated according to the special circumstances.*

On the order to halt at the latest, the commander of the advanced guard indicates the position for the night of its main body, and receives information of the main body of the outposts, and other directions as to what he has to do. He then draws up, by the help of the map, his advanced guard order.

This comprises:—

According to the circumstances he will state more or less distinctly the considerations, a knowledge of which will be required by the outpost commander to enable him to make his arrangements promptly.

Information regarding the general situation, the enemy, the position of the main bodies of the force, and of the advanced guard.

Detail of the outpost commander, and the troops to be placed under him; the task intrusted to him, and the other instructions necessary to allow of his carrying it out (what the outposts are to do if attacked by the enemy, what localities are to be more particularly held, what points should be more especially watched, &c.).

If the formation of several sections is necessary, the boundaries of these must be fixed.

At the same time orders should be issued for the troops not detailed for the outposts, and directions as to what special detail is to be made from the main body of the advanced guard in the vicinity of the outposts; and further, where the commander of the advanced guard will be found.

THE OUTPOST COMMANDER.

In order to avoid loss of time and going out of the way in placing the outposts, the commander will then by the aid of his map give his outpost order, as a rule while marching:—

This will comprise, broadly, the directions required to ensure the judicious arrangement of the outposts being quickly carried into effect.

The following points are essential:

Indications regarding the general situation, the enemy, the situation of the main force and the main body of the advanced guard;

Indication of the general line to be taken up by the outpost cavalry, as well as of the roads which are to be watched by it;

The position of the main body of the outposts, and where the outpost commander will be; the division of the sections for the outpost companies;

Allotment of mounted orderlies; and of the cavalry to be attached to the infantry;

Directions as to the procedure if attacked by the enemy;

To these are generally added the indication of the roads to be occupied by examining parties, the means of security to be provided direct from the main body of the outposts, the time for the retirement of the cavalry in the evening to the main body of the outposts; as well as directions for the night.

Other measures, such as blocking roads, and the special conduct of individual formations, &c.

On receiving the order each portion marches by the nearest way to the place assigned for it. The commander of the outposts further instructs his main body regarding the provision to be made for its shelter, the degree of readiness to be maintained, and the necessary measure for its own protection. Though, after the outposts have been placed, the presence of the commander may be necessary with the advanced line for the purpose of gaining information and controlling the position, still he must not overlook the fact that his duty of commanding the whole of the outposts requires his presence with the main body of them, to which all reports are sent and from which orders are awaited. If he should go to the front, he must hand over the command of the main body to the next senior officer, who for this reason must be made well acquainted with the situation.

The bivouac or locality where the commander is quartered must be fixed so as to be easily found and buglers and mounted orderlies must always be at hand. The outpost companies and cavalry as soon as they have got into their positions report upon these in the form of a simple sketch, which is sent to the commander of the advanced guard.

THE MAIN BODY OF THE OUTPOSTS.

The general situation, especially the nearness of the enemy, will rule the degree of readiness in which the main body must be kept. Infantry keep on their accoutrements, artillery must not be unharnessed, and their guns, which should be kept as far as possible close to the road, must never be placed in closed farm buildings.

The commander decides whether the main body is to be wholly or partially in bivouac, or under cover in available buildings; if the whole or a portion at a time, is to cook and horses to be fed, and if the latter are to be unsaddled by detachments or only the girths loosed.

The main body protects itself by exterior guards. Except in case of alarm no calls are to be sounded or signals made. If the alarm be given in the front line, the main body gets under arms, ready to take the offensive or assume the defensive.

THE OUTPOST COMPANIES.

The number and position of these companies depend upon the ground, and especially the disposition of the roads. A company placed on the main road or in its vicinity is generally the weakest in the line. The companies will not be numbered as outpost companies, but designated by their ordinary numbers. Their distance from the main body must afford it the necessary time to form up; if a company occupies a particularly important point, or one specially favored by the ground, the most determined resistance will be provided for there, and it will be supported from the main body.

The commander moves out in front of his advancing company and rapidly examines the ground, with a view to deciding where it is to be placed, and what parties it will have to send out for its protection. According to the nature of the ground, and especially the roads, pickets or non-commissioned officers' posts, or both, may be necessary.

The protection of important roads and points is provided for in principle by pickets; independent non-commissioned officers' posts assist towards establishing connection and the security of the flanks.

All portions must, by their situation, be hidden as much as practicable from the enemy's view.

The posts pushed forward direct from the company, which in addition to the required number of men for reliefs have generally a few for patrolling duties, have on a small scale the same duties to perform as the pickets, so that their conduct is ruled by like principles. The pickets and posts within the company are numbered from the right, irrespective of whether they are pickets or posts. Whether one or other of the pickets should remain out by day depends essentially upon the ground, and whether this is so covered that the cavalry alone cannot ensure adequate protection.

The men of the outpost companies fall out, but a portion must always be in readiness, in the vicinity of the rifles and packs. No one must leave the company without orders. The mounted orderlies must not unsaddle, and only loosen the girths of their horses, and water and feed them singly. The company posts a single sentry, or if in a building, a double sentry over the arms; in particularly covered country, further double sentries may be placed for its immediate security.

The company commander is responsible for the position and duties of every portion of his company.

All further measures for the conduct of the company, whether the whole or a part should be placed under cover, the supply of water, requisitions for completing provisions, cooking, whether for the whole at one time or by relays, the wearing of greatcoats, &c., will all be regulated by the company commander, according to the actual circumstances, and he will be personally responsible that *in the event of an attack the company shall be at all times in a complete state of readiness for action.*

He reports as early as possible to the commander of the outposts the position taken up and the arrangements for the night, by means of a simple sketch with the necessary explanations. The neighboring companies and the cavalry in front are to be informed of the position of the company.

THE INFANTRY PICKETS.

The strength of a picket is ordinarily a subdivision or a half subdivision. The time for marching off must be so arranged that they are able, after reconnoitring the ground, to take up their positions before dusk. In placing the advanced posts, less regard is had to forming a connected chain than to the occupation of the roads and paths by which the enemy might advance, the intervening ground being searched by a regular patrol service. The number and position of the posts is decided by the officer on guard; each post will be formed either by a double sentry or a non-commissioned officer's post. To allow of their fulfilling their object of seeing well in front, they are placed in the day as well as by night on heights in covered positions.

Those which are particularly important are exposed, as well as the examining posts, are furnished by non-commissioned officers' parties of six men, of whom two are on sentry and the rest form reliefs and remain in the immediate vicinity. The double sentries furnished by the pickets should not ordinarily be at a greater distance than 500 paces. As a rule, in placing the sentries, the six men told off for the post are marched direct to it from the picket by a non-commissioned officer, who, after having posted the first relief, marches back the other two reliefs, who in this manner obtain a knowledge of the ground. If the number and position of the sentries cannot be decided upon beforehand, they are posted successively. The posts whether non-commissioned officers' or double sentries are numbered from the right. If the outpost cavalry does not suffice to cover the placing of the posts, infantry patrols are sent out for that purpose; the remainder of the picket piles arms, and a single sentry is posted over them.

On the return of the picket commander he forms patrols, and sees the piles of arms arranged, so that the reliefs and patrols can take their rifles without disturbing the rest of the men. He reports to any superior officer, but the men do not stand to their arms. Packs and the back pouches are taken off, but the rest of the accoutrements, with the front pouches, haversack, water-bottle, and intrenching tool, are kept on. The mounted orderlies must only water and feed their horses singly.

The commander of the picket is personally responsible that *in case of attack the picket shall at all times be ready for action.*

All persons brought to the examining party who are not clearly recognized by the commander of the picket as belonging to the force, will be handed over to the company. If the picket be posted during the day, the commander must examine the ground within his section, so as to be ready for the requirements at night; but he must always be easly found if wanted. At night he always remains with the picket.

The commander of the picket reports the position he has taken up as early as possible to the company commander.

SENTRIES.

The following general instructions apply to all sentries in the advanced line:

They must look out continuously in the direction of the enemy, and pay attention to every suspicious sign.

They must not lie or sit down without orders, or let their rifles out of their hands.

The moment anything is ascertained regarding the enemy, one man reports it to the picket or company.

If there is danger in delaying, or an attack is recognized, several shots are to be fired, and one man reports the cause.

During the day the persons recognized as undoubtedly belonging to the force may be passed through the line of sentries. All others will be directed to the examining parties. At night every one approaching will be challenged, and the rifle brought to the ready. Any one not halting on a second challenge will be fired at. If recognized on halting as belonging to the force they will be passed through. All other persons will not be allowed to pass, but will be directed to the examining posts. Any one not going there direct, but trying again to pass, or not attending to the orders of the sentries, will be fired at.

Individual officers with a small escort coming from the enemy with a white flag or handkerchief, or sounding a call at a distance, and individual soldiers recognized as deserters by their throwing away or reversing their arms, will not be treated as enemies, but will be directed to the examining posts. No sentries salute, nor are they to be interrupted in their look-out by the presence of superior officers; they only answer any questions addressed to them.

On relief the men of the double post place themselves side by side fronting the enemy, and give over their orders.

These general instructions are completed when the sentries are posted by certain special instructions given by the picket commander; these are:

The denomination of the post; the situation, the position, and denomination of the neighboring posts; situation of the examining party, the picket, and the company, and the nearest way to them.

Information regarding the ground, so far as this comes into consideration and is within the man's understanding. If the sentries are to stand with the rifle carried on the arm, ordered, or slung.

If the communication will be kept up with the neighboring posts by means of patrols.

If the pack may be taken off, and if smoking is permissible, together with any orders necessitated by the special circumstances.

The picket commander determines in each case whether the reliefs of the non-commissioned officers' posts may be placed under cover, and the measures of security to be taken by them. The examining post allows all those evidently belonging to the force to pass through, and conducts others to the picket or company. Bearers of flags of truce are blindfolded and deserters disarmed before being sent back.

PATROLS.

The arrangement of the patrolling service has to be settled from the point of view that no break must occur in the system of gaining information.

The value of every patrol increases with the nearness to the enemy and the promptitude of its report. *Accordingly, under all circumstances by night as well as by day, cavalry patrols must be sent out.*

The cavalry patrols will be completed at an appropriate distance by infantry patrols. The conduct and instruction of these will differ according as they are intended to go beyond the line of sentries or not, and are consequently meant more or less to come into contact with the enemy.

The selection of the patrols to be sent beyond the line of sentries towards the enemy is of particular importance. These patrols are composed of not less than two men under a skilful leader, on important occasions an officer; and their object will be obtained less by careful instructions than by the choice of the men, and especially of the leader. The knack of finding the way quickly in strange ground; endurance, such as can only be attained by having their heart in the work; presence of mind and cunning, having in the moment of danger always some expedient to resort to for escape, are the desired qualifications for this service. The patrols move circumspectly and without noise; frequently halting to listen. They study the ground as much as possible, so as to report on it, and, if necessary, act as guides; they avoid fighting and being cut off by the choice of a different way to return. They should be sent out without packs and in forage-caps, and the hour for their return fixed.

Patrols of two men within the line of sentries are sent out from time to time to visit the sentries, examine the ground not occupied, and communicate between the sentries. In the event of firing or alarm, a patrol is sent out at once to obtain information and afford a first support.

The relief of the pickets is best effected about daybreak, and is carried out as quietly as possible, covered by patrols from both the old and new pickets. The new picket marches up to the old one, and both commanders proceed to carry out the relief of the posts and sentries.

All patrols, when they cross the line of sentries, must inform the neighboring posts in what direction they are going, and, on their return, what they may have observed of the enemy.

THE OUTPOST CAVALRY.

The strength of the outpost cavalry must be adapted to the work of covering the whole breadth of the front well in advance. The practice of bringing the cavalry back at night allows of the same squadrons being more frequently attached to the outposts than can be the case with battalions of infantry. Generally speaking, the proportion is one squadron to every battalion, and it is desirable to keep squadrons intact. The first duty of the commander of the outpost cavalry is to maintain or establish touch of the enemy, or if at too great a distance, to move out well in advance and observe the ground in front.

He must decide promptly on the measures to be adopted, so as to arrange for the roads specified in the outpost order being watched. In covered ground breaking-up can be avoided less than in open country. Though the weak strength of the body remaining behind in close formation will hardly admit of the power to attack, still a skilful occupation and command of points which must be passed by the enemy in a sudden attack will ensure his being materially delayed by carbine fire.

The distribution of outpost cavalry depends upon the circumstances, and it may consist in the posting of one or more pickets, or only of non-commissioned officers' posts, or both, to the front and flanks. The distance from the outpost companies in rear will be sufficient to allow of timely notice being given them of any threatening danger. The outpost pickets must not unsaddle, but only loosen the girths, feed and water by reliefs. It depends on the more or less threatening state of affairs whether the whole or a portion may be placed under cover, which depends also on the condition that the horses can be brought out quickly. The occupation of quarters necessitates the sentry on the arms being doubled. It depends, amongst other things, upon the duration in the position whether fires are to be lighted and rations cooked.

The commander is personally responsible for all these points, and also *that an attack shall always find his troops ready for action.* He reports his position to the commander of the outposts as early as possible. This report, if practicable in the form of a simple sketch with the necessary explanations, is sent in the first instance to the outpost companies for their information. The company commanders must further obtain from the leader of the cavalry information regarding their positions, and *vice versâ*, communication being established between them.

The strength of a picket will be about one officer and a subdivision. *A cavalry picket must never be placed in a closed space.* It posts a single dismounted sentry on the arms. The commander goes out to his advanced line to inspect the vedettes and non-commissioned officers' posts, if anything suspicious is reported, or if firing takes place, so as to see for himself without delay what is going on.

While he remains with the picket he reports to any superior officer who may come to it. He always keeps some patrols ready, and sees that the whole of the picket are made acquainted with the ground, especially with the nearest way to their own squadron, the closest outpost company, and the main body of the outposts.

All other measures for the conduct of the picket will be regulated by its commander, and he will be personally responsible *that an attack shall always find the picket ready for action, and that by means of early intelligence the infantry in rear shall always have time to meet an attack.*

A section of ground will be entrusted to each picket. To watch this, and also to protect the picket, the commander places one or more non-commissioned officers' posts or vedettes, or both. The number and position of these are dependent on the following considerations: an extended view, and the power of seeing the neighbouring posts or sentries; when this cannot be effected without great extension, the roads will be occupied and the communication completed between the posts and sentries by means of patrols. Rapid communication is desirable with the pickets.

The non-commissioned officers' posts, of four or more men, will as a rule be all dismounted, and at most two men will be employed to keep a look-out. And further, the sentry even being dismounted and the rest of the men kept out of sight, the whole of the post is easily concealed from the enemy. Patrols from these posts will not be sent out to any great distance.

The roads specified in the outpost order, so far as these lie within the sphere of the outpost cavalry, will be occupied even by day by examining posts, notwithstanding that the infantry place their own for the night further back.

The vedette always consists of two or three men, of whom at least one must be mounted. They are relieved as may be decided by the commander of the picket. The advantage they offer is that owing to their small size the picket is less weakened by their withdrawal from it than by non-commissioned officers' posts. So far, as in the foregoing, special rules are not given for non-commissioned officers' posts and vedettes, the principles laid down for infantry will be followed.

When the cavalry pickets are placed, they are allotted definite patrolling duties by the outpost commander. A more extended examination of the ground is provided for by the commander of the outpost cavalry or the superior commanders.

Under all circumstances the cavalry even at night must keep touch of the enemy by means of patrols. With this object it may be advantageous to push forward stronger posts under officers beyond the outpost line, not locally attached, which attach themselves to the enemy's movements.

The outpost cavalry must maintain constant communication with the infantry in rear. The pickets and independent posts must acquaint especially the neighbouring infantry without delay with any important information.

OUTPOSTS OF INDEPENDENT INFANTRY.

The outposts of infantry, provided only with mounted orderlies, will be distributed in the same manner and on similar principles as mixed outposts. In order to make up in some degree for the absence of cavalry, the infantry pickets will be placed from the outset, and the mounted orderlies of the companies employed in more extended patrolling duties, especially during the day. If no mounted orderlies are attached, their place must be taken as far as possible by infantry patrols within a more restricted sphere.

OUTPOSTS OF THE CAVALRY DIVISIONS AND OTHER INDEPENDENT CAVALRY.

The work of the cavalry divisions or other independent cavalry must, even when halted and resting, be carried out by the cavalry alone, independent of the other arms. The great extension which the task of great masses of cavalry frequently demands will often prevent it from assembling for the night within a small area, or arranging a connected outpost system. It will generally happen that each place occupied by it, each bivouac, &c., is protected by its own outposts, and these will, according to circumstances, vary very much in their strength and distribution

The close proximity of the enemy and a hostile population demand from the cavalry constant and wearing duties, for these will not be restricted to placing outposts, but special measures of security will frequently be required in the halting places. Whilst the power of reconnoitring far to the front is a protection against the enemy's infantry, an energetically advancing cavalry will not long be kept in check if there be nothing beyond the attack to oppose them. On the other hand, blocked roads, barricades, &c., even of the simplest form, protected by carbine fire, will delay large forces of cavalry for a long time, if they be disposed several in front of one another at places by which an attack must pass. In doing this it should not be left out of consideration that the means of advance must not be altogether unprovided for. The pioneer detachments of the cavalry divisions will be usefully employed in connection with this service. Here and there they may also be utilized to occupy specially important points, notwithstanding their weak effective.

If the outposts have occupied favorable localities or positions, their defense by means of dismounted men will be of more use to the security of the whole than the immediate abandonment of them for the purpose of assembling. The outpost order must provide for this.

If the circumstances allow of the cavalry being kept together, the composition and disposition of the outposts, as in the case of mixed outposts, will consist of a main body and outpost squadrons, from which the necessary pickets and independent posts will be pushed forward. As far as practicable definite objects will be prescribed for the patrolling service of each body. The same principles also will apply as in the case of mixed outposts.

If the cavalry division is widely extended, as for example by brigades side by side, the outposts of the several groups will generally consist only of squadrons, with the necessary pickets and posts sent out. Besides the placing of regular outposts, at a distance from the enemy, advanced squadrons furnish an effective means of protection and gaining information. Free in their movements, they attach themselves to the enemy's movements, and on this account are best enabled to provide for their own requirements. Besides, they can offer effective resistance to attack, and cause delay by the occupation of important points lying well in advance of the outposts, such as bridges, defiles, &c.

OUTPOSTS IN FORTRESS WARFARE.

The Attack.—In operations of this nature the object of the outposts is not limited, as it is in the open field, to gaining time for the main force they cover to prepare for action, but extends further to the protection of valuable and not easily moved material, as well as the complete shutting in of the enemy's garrison.

At the commencement of the investment, and in some portions of the ground throughout the operations, the employment of cavalry outposts will suffice. With the further course of the attack, mixed outposts will frequently be employed; whereas, especially in the ground over which the actual attack is to be conducted, the outpost service assumes a special stamp of its own, and falls entirely to the infantry.

On the front of attack from the first and for a long time in close contact with the enemy, which grows closer as the attack advances, the outposts are frequently exposed to artillery fire, often to rifle fire, and always to sudden attacks.

The outposts will differ from those employed in the field in forming a connected chain of posts, in having the other portions closer up and nearer to one another, and in a more complete preparation of the ground by means of cover, in a determined resistance, and in the

necessity for more easy communications. The establishment of the attacking force in the line of investment demands the immediate preparation of special positions, the placing in a state of defence localities, &c., so as to cover the material and meet sorties. The outpost line may be in advance of this line or partially in it, for the position of the former rests principally upon the fact that every foot of ground won is to be held.

In order to be at all times ready to oppose a sortie vigorously and methodically, it is of extreme importance that every portion of the outposts should be placed in the position in which it will fight. The entire line of investment is divided into sections, each containing its garrison. About one-third of the infantry, often more, forms under the outpost commander the outposts of the section. The outposts are divided into a main body and companies, which, as in the field, furnish the necessary pickets and posts. The main body and the companies will, as far as practicable, be placed in buildings, which will be prepared for ready egress and easy protection, and be placed in a state of defence. Communications will be prepared with the advanced portions, generally by breaking through walls, digging galleries, &c., in such a manner that though not always affording protection from the enemy's fire, they will be covered from view.

In the frequently covered ground through which the outpost line may run, as through villages, woods and gardens, it is of great importance that every portion of the outposts should know the ground well, so as to avoid confusion, especially at night. The degree of preparation of the whole must in general be more complete than in the field, while on the front of attack it must be still more perfect. The pickets, both for their protection and on account of the wearing nature of the outpost service, must be placed as much as possible under cover, measures being taken by increasing the number of the means of exit, or by widening existing ones to ensure being promptly ready for action.

Numerous and small pickets are preferable to fewer strong ones, as it is desirable, at least by day, that the chain of sentries should be visible from the pickets, and as it is less a matter of occupying the roads than of rapidly supporting the posts. The chain of posts consists, as in the field, of double sentries and non-commissioned officers' posts, and they must be so close together that no one shall be able to pass without being fired at. They will consequently have under certain circumstances to be increased in number at night. Cover must also be found or constructed for the posts; for the non-commissioned officers' posts, pits can be dug if necessary. The outpost commanders arrange specially that the outpost line restricts itself to the limits of its section and for communication with the neighboring sections, and these points must be kept constantly in view.

The special instructions for the posts will direct an accurate knowledge of the ground, and call attention to the numerous different and changing aspects of the enemy which are to be particularly observed. Generally the rules given for the conduct of outposts in the field apply equally to those employed in sieges. It may sometimes be useful for the commander of the force to give a "parole." In this case anyone having been challenged and satisfying the sentry that he belongs to the force will be asked for the "parole," which should be given in a low voice. If not in possession of it, the person will be directed to the examining post; if giving a false word he will be fired at.

It must always be borne in mind when in close proximity to the enemy that any movement repeated at settled times will soon be known, so that generally regular relief will be exposed to artillery fire from the fortress. Too frequent relief is not necessary for the rest of the troops. The outpost companies will be relieved according to circumstances, and the entire outposts only after several days. In effecting the relief, care should be taken that as far as possible the troops occupy the sections they are already acquainted with.

The old outposts will not march off until the new ones are completely established and they have acquainted them with all the details and special instructions. Trifling oversights in this respect have often serious consequences. The quarters further back of the troops on outpost duties will not be occupied by other troops if it can be avoided. If circumstances permit, packs and helmets will be left behind in the quarters; but provisions and abundance of ammunition should always be taken. With the advance of the attack, the outposts assume the form of trench guards, pickets, and reserves, and take their place consequently amongst the troops employed in the actual attack, the duties of which are regulated by special principles.

THE DEFENCE.

Before the actual investment, the defenders will keep in view the importance of gaining intelligence regarding the advance of the enemy, and especially the intended establishment of the park. The support for the cavalry which is pushed far forward for this purpose, and for which, in the further course of the siege, there will be no equally important duty, is formed by the outer detachments, which fall back into the outpost position on the further advance of the attacking force. While similar circumstances to those of the attackers lead to a similar distribution and conduct of the outposts, the superiority must be made use of which an intimate knowledge and thorough preparation of the locality ensure. On a closer investment the same conditions apply to the outposts of the defenders as in the attack.

CONCLUSION.

The task of the outposts as a whole points to their not seeking to engage the enemy. A useless skirmish endangers the repose of the whole force, while it may lead to engagements, the limits of which it will be no longer in the power of the outposts to determine.

But an attack must always find the outposts in a complete state of preparation to put out their entire strength, and the leaders of every grade must be prepared for every sacrifice for the responsible object of covering the main force.

THE MARCH.

The far greater part of the efficiency of troops in war consists in their marching. The march forms the basis of all operations, and upon its certain execution essentially depends the result of every undertaking. It is often, indeed, of decisive importance that a force shall arrive at the right time ready for action at the point indicated for it.

Strict discipline on the march, and the greatest care in seeing to the clothing and equipment, as well as to the feeding and health of man and horse, are the most efficient means of maintaining and increasing good marching capabilities. With the infantry it is the footsore men, and with the mounted arms the galled and lame horses, which weaken troops on a long march, and give the measure of the care devoted to the troops and of their discipline.

Constant observation of the infantry, the horses and the mounted men on the march, especially towards its termination, thorough control and appropriate alterations during halts as well as in quarters, (especially on halting days), with strict punishment for neglect, are matters for the company and other commanders, and are alone capable of lessening the losses from the fatigues of the march.

Troops accustomed to discipline on the march will, however, only continue to be constantly and completely efficient if every exertion not absolutely demanded by the march be carefully avoided. In this connection, particular attention is necessary in regulating the times for the several units to march off. Large bodies collected at a rendezvous can only be put in motion successively. The arrival of the troops must be regulated accordingly, for waiting there only tires the troops unnecessarily. They must never march off earlier than is necessary, and the assembly of all the several units must always take place in the direction of the march. In framing the order for the march, therefore, the depth of the column, the rate of marching, and the distance from the rendezvous must be all taken into consideration.

The hour for marching must not be fixed too early. Even the advanced portions of the infantry will not ordinarily march off before daybreak, the mounted arms if possible an hour later, so far as their tactical employment does not require an earlier start. It is generally better not to march from a known locality before daybreak, than to arrive in an unknown one in the dark. All unnecessary *détours* are to be avoided. The marching off and in at the conclusion of the march takes place at "attention." Soon after marching off, on getting on to the road, the troops are allowed to march at "ease" in open order and out of step.

On broad roads, one side must be left sufficiently clear to allow of other troops passing; on narrow ones room must be left for mounted men to pass at speed, without delay or inconvenience to the marching troops. The mounted officers with the latter must only use this free space exceptionally, especially with large columns. On bad roads or in hot weather it may be desirable for the troops to be divided and to march on either side of them, leaving the middle free. Individual changes in the uniform is not to be allowed; but any permissible relief in this respect is to be ordered for all at the proper time by the commanders.

The greatest enemy to the march is the heat, and the extreme fatigues it imposes on the troops, especially the infantry, the ranks of which it is capable of thinning in a short time, demand carefully considered remedies.

The most effective is regulated drinking during the march, without it being necessary to make a long halt for the purpose. By means of officers sent on in front the inhabitants of the villages through which the column is to pass will be made to carry out water in as many vessels as are available to either side of the street, in readiness for the troops. With small bodies it will then be possible to allow all to drink by a short halt. If this is not possible, as with large bodies, without causing delay, the water should be handed to the men without halting, and they can drink and fill their water bottles. The disorder this may cause in the column will not lead to any slackening of discipline, so long as it is done by order.

Having the packs carried for the men affords them naturally considerable alleviation and increases their power of marching. But the great augmentation of the baggage inseparable from this measure limits resort being had to it to exceptional and minor occasions. In the formation for the march what is desirable is to unite sufficient looseness in the order to save the men's powers, with the necessity for placing bounds on the depth of the column, so as to allow of a rapid deployment for action. In the infantry, these conditions are best secured by marching in two ranks in section columns of four files, with an increased distance between the ranks. On the march the company leader must see that supernumeraries, subdivision leaders, a d non-commissioned officers march in ranks of four files at the front or rear of the subdivisions, and that musicians, sick attendants, &c., are at the rear of the company. He remains himself mounted, placing himself where his control is most wanted.

The diminishing of the depth by closing up the ranks soon increases the fatigue of marching, and is therefore only to be employed exceptionally and for short periods. A more permanent diminution, by increasing the front to subdivisions with half intervals will be permissible when the road does not become narrower frequently or for a long distance.

Cavalry moves in column of threes or of twos. The latter offers increased ease, but prolongs the depth considerably, so that with large bodies column of threes is the rule. The squadron commander rides where the control of the squadron can best be effected.

Artillery marches in single column with increased intervals between the guns. The battery commander is not restricted to his regulated place.

The impossibility of marching altogether at an even pace necessitates also, especially with large bodies, a greater extension of the whole column. This is provided for by intervals between the several units, which become closed up during temporary delays but are regained again subsequently. They are estimated as follows:—

After a company about 15 paces,
After a battalion, squadron, or battery, 30 paces,
After a regiment or division of artillery, 40 paces,
After a brigade, 80 paces,
After a division, 325 paces.

The permanent extension of these intervals is no more allowable than a permanent contraction of them.

Besides the intervals care must be taken to maintain an even pace which avoids delays or marching out for the troops in the rear, and for this the head of the column is responsible.

Cavalry marches in front of infantry and now and then trots some distance. Under favorable circumstances large bodies cover a mile in about twenty minutes. It is a principle that the longer the column is the slower must be the pace maintained by its head. As a minimum rate on made roads and in moderate weather infantry marches 104 paces a minute, cavalry and artillery 103 at a walk, 260 at a trot.

Besides a brief halt shortly after the commencement of the march to allow the men to fall out, every march requires one or more rests according to its length and the temperature. A single one should be held after the greater part of the distance has been covered, and when there are several, every two hours afterwards. For every rest the arrangements must be so made that it is not shortened unnecessarily by movements that are avoidable. So as to fix upon a suitable place without halting, mounted officers should be sent forward to look out for one. If other circumstances admit of it, and the road will not be blocked, the quickest method is to halt and pile arms or dismount in column of march on or close off the road. This need not prevent individual units forming up in closer formation near the road. In choosing a place, the time of year and the weather are to be considered as regards shade, shelter from the wind or rain, &c.

Cooking during a march on account of the issue of provisions and getting fuel gives more trouble and takes more time than cooking in quarters or bivouac, where it has in any case to be repeated at the end of the march. Especially the want of water for cooking during the march may necessitate the troops forming up as completely as if going into a bivouac. Unless in the case of an exceptionally long march, necessitating its division, and consequently cooking, it is more advisable to complete the march, even if it should not be done before late in the afternoon, and to combine cooking with the night's rest.

All the arrangements for the end of the march, as the direction of the several units by the nearest way to their quarters, the issue of billets, the moving into bivouac, &c., must, if practicable, be so far prepared during the march that every unnecessary delay in affording repose to the troops may be avoided.

All arrangements for the march are dependent upon whether contact with the enemy is possible. If this is excluded, the march allows, as a pure route-march, of regard being had exclusively to sparing the troops fatigue. The more essential point is to march in small bodies or separate units and by the shortest roads from quarter to quarter; for the larger and deeper the columns, the more frequent and sensible will be the interruptions, and the greater the dangers from the heat. The latter especially may cause a route-march to be conducted by breaking up the force and marching in the smallest units.

The moment contact with the enemy becomes possible, all other considerations give way to readiness for action. This lies in the collection of the troops in large tactical bodies, in the order of march, that is, the succession of the troops on the march, in closer order if necessary, and in measures of security being taken. It will then be for the commander to decide what must be done on tactical grounds and what to preserve the forces of the men.

The manner of concentrating the troops for the march is decided not only by tactical considerations, but also by the strength of the forces. Large rendezvous offer the advantage of disposing of the troops until the moment of moving off, of choosing between several directions for the march, and of arranging the order of march on the spot. They will, however, as a rule, only be adopted in close proximity to the enemy, which necessitates even during repose a close concentration. Otherwise, they entail waste of time in marching to the rendezvous, and a wearying conversion into column of march again.

If circumstances permit, formation in small groups is desirable in the rendezvous, as, for example, taking an infantry division, one for the advanced guard, one for the leading regiment of the main body and the artillery division, and a third for the other infantry brigade. These and smaller groups can also be assembled in column of march on the road. Baggage, ammunition columns, and train must never interfere with the movement of the troops. Large rendezvous, which cannot be recognized with certainty by the map, must be reconnoitred beforehand, and prepared if necessary by marking the edges of ditches with stakes, &c.

The order of march of the troops told off to protect the column (advanced guard, &c.,) will be decided by their leader, that of the main body by the commander of the whole, in which the judicious employment of the troops is of first importance. As a rule the infantry belonging to the same regiment or brigade as that with the advanced guard marches at the head of the main body, the artillery moves as far forward as its safety will permit; in regard to this it may be desirable with a very long artillery column to place a small detachment of infantry in the middle of it. The bulk of the infantry follows.

A day's halt is desirable after a long series of marches, not only for the rest of men and horses, but still more by the necessity for putting the arms and clothing in order.

Night marches may sometimes be necessitated by considerations regarding the enemy, or exceptionally in the very hot season. They are always inseparable from the disadvantage of exhausting the powers of the troops. If they have to be adopted, special attention must be devoted to every arrangement that will secure the uninterrupted march in the right direction being maintained in the dark. The principal among these are to provide for the connection within the column, to avoid fatiguing delays by clearing away or moving round obstacles, and to follow the right road. In the vicinity of the enemy the strictest silence must be maintained.

SHELTER FOR THE TROOPS.

The German term covers what we understand generally by encampments, the difference in the expressions arising from the fact that the German army does not carry tents. They trust entirely upon cantonments and the occupation of localities for cover on the march, resorting to bivouac only when these are not available. If the vicinity of the enemy, the numbers of the force, or the absence of large villages do not allow of accommodation in cantonments, the occupation of localities such as farms, and parks, gardens, &c., affords more shelter to the troops than simple bivouacs, while allowing the troops to be in an equal state of readiness.

In the immediate neighborhood of the enemy, when tactical considerations necessitate the troops being maintained even at night in a special position, or in the absence of any shelter from localities, the simple bivouac is resorted to.

CANTONMENTS.

If contact with the enemy is excluded, the comfort and supply of the troops is the main point, and they will be widely extended in the available quarters. The *ordre de bataille* forms the basis of the distribution, the mounted arms being divided amongst the others, so as to occupy quarters and stabling equally. On the march, the villages on and in the vicinity of the road will be more closely occupied. When in close proximity to the enemy, the troops must be kept together, and consequently the villages more closely occupied; the distribution will be ruled more by tactical considerations. The occupation will be closer, infantry will be strongly quartered in the places in the front line, the artillery more in the middle and never alone, and the cavalry further from the main road, the train being furthest from the enemy.

The headquarters and staff quarters will be as far as possible in the middle of their zones, near telegraph stations and large roads; care must also be taken that reports from the front as well as orders can reach them without going out of the way. When circumstances permit the course pursued in peace-time regarding the preparation of cantonments will be adopted. With large bodies the distribution will be arranged with the civil authorities, and the quarters prepared by quartermasters sent on in front. Even when the distribution is only ordered actually during the march, quartermasters must be sent in advance, or in the infantry mounted officers, if necessary, for it insures as a rule a more rapid settling down and earlier repose than if the troops arrive unannounced.

The issue of billets ensures regularity in getting into cantonments, and this will consequently be always done when time admits of it. Otherwise, a more summary procedure must be adopted, whole quarters being allotted to the several bodies, and streets and houses to the units composing them.

The senior officer of each cantonment acts as commandant. The generals and regimental commanders are entitled to nominate the senior field officer. He arranges for the distribution of the several bodies, for their internal duties, the external measures for security, and the state of readiness of the troops. If regular preparations cannot be made for the distribution of the troops in the cantonments, this will be done by an officer sent on in front, and it is desirable that he should be accompanied by the quartermasters. The several quarters must have limits that can be easily recognized, especially when closely occupied, regard being had to the alarm posts, and, if necessary, to the defence of the place. The artillery must always be in the vicinity of their gun-park.

A cantonment officer of the day is detailed (with large cantonments a field officer,) and officers for rounds will be detailed as required. Besides the cantonment officer of the day, each battalion, cavalry regiment, and artillery division furnishes one lieutenant, and each company, squadron, battery, and column, one non-commissioned officer of the day, for their respective units.

In each cantonment a main-guard will be established for internal duties. Its strength will depend upon the number of sentries required, which must be reduced to a minimum, especially when quartered during a march. Ordinarily, one on the colours and one on the wagons should suffice. If different bodies of troops occupy the same cantonment, each will furnish men to the main-guard according to the number of sentries it requires for its own protection. In order to economize the number, the wagons should be parked as far as possible together. Police considerations, an increased number of objects to be watched, the uncertain attitude of the inhabitants, &c., require an increased guard, and, if necessary, more than one. *The internal guards follow the procedure of ordinary garrison guards.*

In the neighborhood of the enemy, special outlying guards are necessary, which are pushed forward according to the danger threatened and the ground. The issue as well as important points will be occupied by double sentries. With mixed arms they will as a rule be composed only of infantry.

The instructions for picket duties will apply to the outlying guards.

The alarm posts to be fixed for every corps must be selected near the respective quarters, in such a manner that they can be reached promptly from the points occupied by the troops, and that the several bodies shall not hinder one another. The alarm post of the artillery, which must always be by the gun-park, should as far as possible be situated on the side furthest from the enemy.

Under certain circumstances it may be useful to fix upon alarm rendezvous for large bodies, at which, on an alarm, regiments, brigades, &c., assemble without further orders. But it is advisable to limit this to those cases in which it can with some certainty be foreseen that the places of assembly selected are such as will meet the object in view.

On an alarm being given by the "Assembly" being sounded, the infantry form as quickly as possible, fully equipped, on their alarm posts. The dismounted artillerymen hasten to the gun-park and help the drivers to harness. The mounted arms, the baggage and carriages must, especially for night alarms, be given special instructions by the commandant. If the enemy should have got into the place by surprise, those who cannot reach their alarm posts remain in their quarters, so as to barricade them and prepare to defend them with their fire.

In the vicinity of the enemy, cavalry in cantonments by themselves will provide against surprise by precautionary measures. In the event of surprise their cantonment guards can be dismounted, and carbine fire employed.

THE OCCUPATION OF LOCALITIES.

When large bodies are to be disposed of in localities, they are divided between several situated as near as possible to one another, on the same principles as in cantonments, and the

portions detailed that are to be quartered in houses and farms, and those that are to bivouac in the gardens, courtyards, and neighbouring fields. The roads must not under any circumstances be utilized for bivouacking.

If the whole are to be quartered in the localities the measures of security towards the enemy, as well as the internal duties, will be the same as when in close cantonments. If portions of the troops bivouac in the vicinity, these measures will be extended according to the orders in regard to bivouacs. The advantage offered by the occupation of localities with large bodies have also disadvantages which must be counteracted by various arrangements to be made by the commander. Amongst these are the difficulties of arranging in the dark for the regular disposition of the troops in them, of preventing unauthorized requisitions, of arranging the water supply and all those circumstances which are inseparable from the concentration of large bodies of troops.

It is of great importance, in arranging for the quarterings of large bodies of troops in localities, that the necessary dispositions should be made before the arrival of the troops. For this purpose it is desirable that the senior officer should go forward, accompanied by an officer from each corps.

BIVOUACS.

The smaller the force and the less it is tied to a particular spot, the more advantageously can the bivouac adapt itself to the ground. The greater the mass of troops assembled in bivouac, the less can regard be had to choice of the ground. Respect for adjoining units leads to the limits of each unit being definitely fixed, and to the lines, the cooking trenches and the latrines, &c., being placed without special regard being had to the nature of the ground, the cover available, and the direction of the wind. The readiness of the troops for action also is not always ensured by the concentration of large bodies, for the difficulty of disposing the troops to meet an unexpected attack, especially in the dark, naturally increases with their bulk. When circumstances admit, therefore, it is advantageous to break up the larger formations into smaller groups for bivouacking purposes.

Apart from the troops detached for the purpose of security, advanced guards, &c., the *ordre de bataille* is followed. Artillery should always be joined to other troops. If large bodies must be assembled in a single bivouac, as large intervals as possible must be left, when the ground admits of it, between the different formations, both to facilitate interior order and to allow of the way about being more easily found in the dark.

The place of bivouac must be selected as early as practicable by the commander or his substitutes going on in front, and suit both as regards the tactical requirements and the comfort of the troops. The former influence the position and disposition of the bivouac, with a view to a rapid forming up or continuation of the march. If there is a question of the probable occupation of a position for defence, the bivouac must be situated only at such a distance behind this as will admit of it being occupied in time in case of sudden attack.

The bivouac must be withdrawn as far as possible from the enemy's view; good communications out of it must be considered and made if necessary.

The care of the troops requires, above everything, a sufficient and easy water supply, dry ground, and as much shelter as possible against wind and weather. Covered ground, such as standing crops, may be very inconvenient and is generally to be avoided. Meadows, although they appear to be quite dry, always harbour moisture and mist at night. One night passed on unwholesome, damp ground may cause more casualties than an engagement. Stubble or open wood offer, as a rule, the best ground.

The security, the internal arrangements, and the duties in bivouac are dependent upon the changing circumstances in regard to readiness for action, the care of the troops, and especially the nature of the ground. The following rules are (also in tents or hutments) of general application. The commander of the bivouac is responsible for arranging, according to circumstances, the appropriate measures, when a deviation from or addition to these becomes necessary. As regards the latter, he is responsible for obtaining whatever materials may be available (straw and planks for building huts, wood and underwood, &c.) *to provide shelter for the troops from the weather as quickly as possible.*

In the vicinity of the enemy, outlying guards are furnished to close the bivouac and protect it from attack.

The same rules generally apply to them as to the outlying guards furnished in cantonments.

Inlying guards serve principally for police duties; they are furnished from each unit according to the orders of its commander. Their strength depends upon the sentries to be posted, as a rule one on the commander and one on the colours for the arms.

The infantry bivouacs in company columns, which in battalion formation are side by side at ten paces interval. The front of the battalion occupies 250 paces, and the depth of the bivouac about 264 paces.

The cavalry bivouac in squadron columns wheeled up to a flank, the squadrons at half distance. The front occupies 150 paces, and the depth of the bivouac about 320 paces.

The artillery bivouacs in such a manner that the guns are in front line, with fifteen paces intervals; behind them come the carriages of the first relay (three ammunition and one store wagon). Further, in rear and equally in two lines, with fifteen paces interval, are placed the carriages of the second relay. Then come the horses, the men's equipment and packs, and after that the men themselves. A field battery occupies about 150 paces in front, and 220 in depth of bivouac. A horse artillery battery requires a similar front, but the depth is slightly greater.

In case of sudden alarm, whether from an unexpected attack, or if the "Assembly" and "Alarm" are sounded, the infantry (rifles and pioneers) hastens each man to his place by the arms, buckles on his equipment and pouches, and puts his helmet on. The putting on of the packs and unpiling of the arms follows on the command. The transport carriages are put to. The cavalry saddle as quickly as possible, put on their equipment and mount. The squadrons assemble at their alarm posts. The carriages will be put to.

Artillery (ammunition columns and train) saddle, harness, put on equipment, and put to the guns or carriages without further orders.

The inlying guards remain in their places until further orders or, if necessary, throw themselves on the enemy. The quarter-guards take charge of any material, &c., left behind, and in the case of a sudden march they only follow when everything is loaded up and ready to move.

As a rule the hour for breaking-up the bivouac will be previously ordered. In this case all fires will be carefully extinguished a quarter of an hour previously. The guards join their own corps — so far as this does not interfere with the continuance of the necessary precautions in the direction of the enemy — and the troops form up ready to march off. The whole of the carriages belonging to the troops remain in their places until they are ordered to move off.

REVUE DE CAVALERIE, MAY, 1888.

Major-General SOUCHOTINE, professor at the Staff Academy, delivered a very remarkable lecture last month at the officers' casino of the staff of St. Petersburg, on the organization of cavalry; the Commander-in-Chief of the Russian Army, Grand Duke WLADIMIR, Field Marshal Gen. NICHOLAS NICOLAIEWITCH, and many general and field officers were present. Gen. SOUCHOTINE is of the opinion that the rôle of cavalry in war has been greatly increased, and that the cavalry in consequence must be given an organization *en rapport* with the duty it will be called upon to render. He concluded by demanding: first, that the strength of the arm be greatly augmented; second, that large cavalry corps 12,000 strong be organized; third, that the number of squadrons be increased to ten per regiment; fourth, that for the service of exploration, and security, the patrols be increased to at least twenty men. These broad views were acquiesced in by all those present, says the *Invalide Russe*, from which this brief summary has been taken.

REVUE DE CAVALERIE, JUNE, 1888.

The *Armee Verordnungs-Blatt* of May 28th, publishes a cabinet order abolishing the cuirass in the Gardes du Corps and cuirassier regiments (except for parade purposes). These regiments will be armed with carbines, and the revolver will no longer form a part of their armament.

RECEIVED.

Manœuvres for Infantry, Principles and Forms. By Major W. R. LIVERMORE, corps of engineers, United States Army. (CHARLES SCRIBNER'S SONS, New York.)

The Modern American Pistol and Revolver — A Description of Those of American Make — Ammunition Used — Results Accomplished, and Shooting Rules Followed. By A. C. GOULD, editor of *The Rifle*, Boston. (A. C. GOULD & Co.)

When we read the comprehensive title of this book we expect something more than a description of modern pistols and revolvers of American make and their performances in target shooting. Though we feel some disappointment in not finding more of the deeds of the revolver chronicled, in field or foray, fight or brawl, in the hands of WILD BILL or H. B. FRENCH, we find the topics discussed to be presented in an interesting way.

We learn that the eight-inch bull's-eye has become so easy for good shots that it is reduced one-half at thirty yards and one-quarter at twenty yards, and that it is retained only at fifty yards and over; at these distances with these targets perfect scores are by no means uncommon. Few of the performances of the revolver at longer ranges appear to be of record yet. We note, however, that Mr. F. E. BURNETT on his first attempt with a 44-calibre Russian model SMITH & WESSON revolver made a perfect six shot score at one hundred and fifty yards, on a second-class target. The author predicts that similar scores will soon be made up to two hundred and fifty yards, and he informs us that officers in European armies have secured good results up to four hundred yards. As most wild game shooting (large and small) takes place within one hundred and fifty yards, it is hinted that the revolver may become a very useful sporting weapon.

The editor of *The Rifle* has shown such interest for the revolver that it must be a matter of regret that he has not taken up his subject in other phases. The defects of the weapon for rapid shooting we commend to his intelligent attention as well as the subjects of the history and possibilities of the revolver in war.

The Campaign of NAPOLEON. By JOHN C. ROPES, New York. (CHARLES SCRIBNER'S SONS.)

The Necessity of an Organized and Elevated Veterinary Corps in the United States Army. By ORLOFF SCHWARTZKOPFF, V. M. D.

EXCHANGES.

LIST OF PERIODICALS IN EXCHANGE.

Journal of the Military Service Institution.— Vol. IX., No. 33. March, 1888.

Our Northern Frontier — How to Feed the Soldier — Systems of Defense of the Principal Powers of Europe — Legal and Tactical Considerations Affecting the Employment of the Military in the Suppression of Mobs.

Proceedings of the United States Naval Institute.— Vol. XIV., No. 45.

Three Considered as a Tactical Unit — Velocities and Pressures in Guns.

The Guardsman, May 1888. Chicago.

The Rifle. Boston.

ENGLAND.

The Illustrated Naval and Military Magazine.— Vol. VIII., No. 48. June, 1888.

Military Problems—Rapid Field Sketching and Reconnoissance—The Conquest of the Punjaub—The Sikkim Expedition—A New Portable Hospital.

FRANCE.

Revue du Circle Militaire.

No. 17, April, 1888: The Future of the Graduates of the Preparatory Military Schools—Mobilization of the Italian Army. No. 18, April 29, 1888: Training of Horses for Field Service and the Necessary Qualifications of the Cavalry Officer Now-a-Days—Account of an Imaginary War Between France and Italy. No. 19, May 6, 1888: General BUDISTEANO's Report on the Manœuvres of the Twelfth French Corps—Marshal MOLTKE. No. 20, May 13, 1888: The Trans-Caspian Railway—Effect of Torpedoes Upon Fortifications. No. 21, May 20, 1888: Military Pigeons in Italy. No. 22, June 3, 1888: The Russian Army in Turkestan. No. 24, June 10, 1888: The Foreign Military Press on the French Infantry Armament—Russian Summer Manœuvres of 1888. No. 23, June 17, 1888: The Hospital Corps of the Swiss Army—Instructions for Hasty Intrenchments in the Russian Army.

PRESS NOTICES.

The Epoch.

THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION is the title of the latest addition to the ranks of monthly magazine literature. THE JOURNAL publishes much data concerning the great cavalry establishments of France and Germany, and it discusses such questions as "Sabers or Revolvers?" "Remounts," "Marching Cavalry," "Mounted Fire Action of Cavalry," etc. The articles are contributed by leading cavalry officers, who must be considered authorities on the subjects which they discuss. The U. S. Cavalry Association, of which THE JOURNAL is the official organ, has its headquarters at Fort Leavenworth, Kansas, under the presidency of Brevet Major-General W. MERRITT, U. S. A. Its design is professional improvement, and the advancement of the cavalry service generally. Its members are cavalry officers in actual service, and former officers of honorable record. In addition to these, honorary members are elected from time to time from among persons distinguished in military or naval service, and eminent men of learning. Their number, however is limited to twenty. Thus far only eighteen have been elected, among whom we notice, General W. T. SHERMAN, U. S. A., Hon. J. C. ROPES, General LEW WALLACE, Governor FITZHUGH LEE, and Professor JEAN ROEMER, vice president of the College of the City of New York and author of *Cavalry, its History, Management and Uses in War.*

The Nation.

The initial number of THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION for March has come to hand. It is well printed at Leavenworth, Kansas, and is good reading.

The Kansas City Times.

The U. S. Cavalry Association has issued its first JOURNAL and its appearance reflects credit upon the Association. It is of similar size to those issued by the Service Institute at Governor's Island, but is far superior in workmanship and quality of paper. Its contents are made up from a selection of papers read before the Association by a special committee appointed by the presiding officer, the names of the members of which are not made public. THE JOURNAL contains 140 pages of matter exclusively devoted to the interests of the Association. The remaining pages show a list of American and foreign military works which can be obtained through the secretary of the Association, besides many pages of advertisements from the best houses in the country.

The Leavenworth Times.

If the first number is a fair sample of what is to follow, the success of THE JOURNAL seems to be assured. The Association, its object and aim, and THE JOURNAL are all highly commendatory.

Army and Navy Journal.

"THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION," the first number of which has just appeared, is a handsome magazine of 140 pages. This is an exceedingly creditable first number of a periodical which is destined, we hope, to have a long and useful career. No officer of any service could read the papers and the discussions which appear in THE JOURNAL OF THE CAVALRY ASSOCIATION without increased respect for the ability and the professional attainments of the officers of the American cavalry service.

Public Service Review.

A trumpet blast, sounding a rallying note, comes to the ears of American cavalrymen with the initial number of THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION. For the first time in the history of our professional literature we have here a periodical devoted to the improvement of the Mounted Service and the prospect seems good for the preservation in an enduring form, convenient for reference, of the results of matured experience in the field, as well as a record of interesting modern experiment, for the future guidance of the cavalry world.

The issue of the handsome volume cannot but inspire the progressive officers of the army with fresh zeal and should prove an important recruiting agent for the Association.

The Guardsman.

THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION made its *debut* in March last, and will be published from time to time as may be deemed advisable. The number before us contains ten papers on subjects of general interest to all branches of the service and the members of the Association include the most prominent officers of the army.

Proceedings of the U. S. Naval Institute.

JOURNAL OF THE U. S. CAVALRY ASSOCIATION. Volume I, No. 1, March, 1888. The first number of this journal, published by the Association at its headquarters, Fort Leavenworth, Kansas, comes to us replete with useful and interesting information for the cavalry branch of the army. It contains also the Constitution and By-Laws of the Association, which in their main features resemble very closely those of the Naval Institute. The JOURNAL appears in a very neat and appropriate dress, and the publication committee are to be congratulated upon its handsome appearance. We predict for the Association a prosperous career. C. R. M.

Army and Navy Gazette, (London).

THE JOURNAL OF THE U. S. CAVALRY ASSOCIATION for March is the first issue of a publication intended to appear from time to time, and to contain a selection of the papers read before the Cavalry Association of Fort Leavenworth, Kansas. Several contributions in the present part have reference to the arming of cavalry. * * * There are other good papers on marching, remounts, French cavalry, dismounted service, &c.

Journal of the Royal United Service Institute, (London).

JOURNAL OF THE U. S. CAVALRY ASSOCIATION. Volume I, No. 1, March, 1888. Page 125. Price 50 cents. This is the first issue of the JOURNAL of the U. S. Cavalry Association at Fort Leavenworth, Kansas; and its contents show that the U. S. Cavalry are as anxious as that of any other army to keep in touch with the times. The New York agent for sale of the publication is BRENTANOS.

Revue de Cavalerie—No. 39, June, 1888. BERGER LEVRAULT, et cie, Paris.

The cavalry of the army of the United States though not large, has its *organ* also, like the French and Italian cavalry. It is not a review, properly speaking, but the journal of the association of American cavalry officers; it has no regular date of issue, but is only published when sufficient matter has been collected to form a number.

The future publications, judging from the initial number, will be replete with interesting matter. In the latter, now before us, there is an article on the organization of the French cavalry, a study on remounts, some views on the employment of fire arms by mounted troops, &c.

Let us hope, that in time, this journal will give us some historical information on the employment of cavalry in the war of secession, a subject which it is preëminently able to handle; and that this attempt of our comrades beyond the sea may meet with all the success it deserves, is our heartfelt desire.

MEMORANDUM.

At a meeting of the Cavalry Association, at Fort Leavenworth, Kansas, April 7th, 1888, the following resolutions were unanimously adopted:

Resolved: That the thanks of the Association are due, and are hereby tendered Maj. W. BOERUM WETMORE, life member, for a complete set of illustrations by DÉTAILLE, DE NEUVILLE, MEISSONIER, and others, of the Franco-German War, presented by him to the Association.

Resolved, That the Secretary of the Association forward a copy of the resolutions to Maj. WETMORE.

O. L. HEIN, *Secretary.*

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1888.

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Vroom, P. D..... .....Captain 3d Cavalry
†Vizay, R. W....Lt. Horse Squadron, W. N. G.
Wade, J. F.....Colonel 5th Cavalry
†Webster, H.....Past Ass't Eng. U. S. N.
Watts, C. H.....1st Lieut., Adj. 5th Cavalry
†Wilson, T. H.....2d Lieut. 2d Infantry
Wallace, W. M.....Captain 6th Cavalry
Winsor, H..... ....Late Capt. 6th Pa. Cavalry
Wagner, H.....Captain 1st Cavalry
Woodson, A. E.... .....Captain 5th Cavalry
*Wetmore, W. B.....Late Lieut. 6th Cavalry
Wint, T. J... .....Captain 4th Cavalry
†Woodhull, A. A., Maj. M. D.,Bvt. Lt.Col. U.S.A.
Ward, F. K.....Captain 1st Cavalry
†Wetherill, A. M., 1st Lt. R. Q. M., 6th Infantry
Wesendorff, M.... .....Captain 1st Cavalry
†Wagner, A. L.....1st Lieut. 6th Infantry
Waite H. de H.....1st Lieut. 5th Cavalry
†Whipple, C. W.....Capt. Ord. Corps
†Wisser, J. P.....1st Lieut. 1st Artillery
Whipple, H. S.....2d Lieut. 10th Cavalry
Wainwright, R. P. P., 1st Lt., Adjt. 1st Cavalry
Wood, E. E.....Captain 8th Cavalry
Wheelan, J. N.....Captain 2d Cavalry
Wright, E. S.....2d Lieut. 9th Cavalry
Wood, A. E.....Captain 4th Cavalry
†Winding, Geo...Lt. Horse Squadron, W. N. G.
†Whipple, C. H..... .....Major P. D.
Willcox, E. F..... 1st Lieut. 6th Cavalry
Williamson, G. McK....2d Lieut. 6th Cavalry
†Wettlang, L.....Lt. Cav. Troop, Kan. City
Young, S. B. M., Maj. 3d Cav. Bvt. Col. U. S. A.
Zogbaum, R. F.....

† Associate member.
* Life member.